

Research Memorandum 79-8

12 **LEVEL II**

**RESEARCH ON TRAINING MANAGEMENT
TECHNIQUES FOR USAREUR:
PHASE I, DESIGN AND TRYOUT**

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General Research Corporation

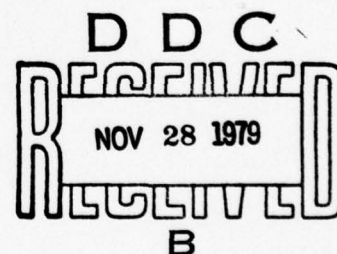
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Unit Training in
USAREUR

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PHASE I, DESIGN AND TRYOUT

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BRIEF

BACKGROUND

✓ The objective of this project is to develop a training management approach that will enable USAREUR commanders to sustain unit and individual combat skills at the levels necessary to accomplish their assigned missions, while continuing to meet the day-to-day demands on their battalions.

→ The approach that was used was to first develop a conceptual framework for the accomplishment of sustainment training and to develop on a preliminary basis the training management techniques necessary to implement that concept. The primary thrust of this management concept is to expand the application of performance standards to all areas of training management and focus the battalion staff on evaluating to standards on planned periodic schedules. As such the model deals primarily with the battalion as the quality control agent rather than with training techniques per se.)

→ The proposed techniques were tried out during the course of a year in one USAREUR infantry battalion. Information gained during the tryout period was used to modify, expand or discard various elements of the conceptual procedures. The next step will be to apply the results to other battalions and evaluate both the utility and effectiveness of the developed procedures. ✓ This report describes the results of the development try-out phase and makes recommendations for actions that can be taken to improve the overall USAREUR training environment. 4

PRINCIPAL FINDINGS

1. Training is not a single, constant system and training management cannot be so addressed. Eight areas were identified that must be managed with distinct procedures so that sustainment training can be accomplished in an operational environment. They are:

- Major events
- Maintenance
- Mandatory requirements
- Individual sustainment
- Unit sustainment
- Schools
- On-the-job training
- In-processing

2. Sustainment training today requires an extra commitment on the part of the battalion if it is to be accomplished. It is currently possible to be a "successful" battalion by focusing entirely on major events, maintenance, and mandatory requirements, since these are the areas that are typically closely monitored by higher headquarters.

3. The battalion can affect only part of the management changes required to increase individual and unit sustainment training. Concurrent changes are required in areas controlled at brigade, division, corps, and USAREUR command levels.

4. Mandatory training imposed on battalions goes far beyond the recurring requirements in the 350-1 regulation series. Requirements of both a recurring and ad hoc nature come in via mail, telephone, and direct contact. The individual and unit sustainment sub-systems permit the

accomplishment of many of the recurring requirements on an integrated basis with defined sustainment needs. The ad hoc requirements, however, work counter to the goals of training management.

5. The performance to standards evaluation approach provides a clear picture of where the battalion stands with respect to sustainment. Whether such a clear picture can be tolerated by a battalion is dependent on the response to such information by higher command levels.

6. Current ammunition allocations do not appear to be sufficient to support sustainment of weapons skills using today's training techniques.

7. Use of the management system aided the try-out battalion in acquiring training resources and avoiding conflicting requirements by enabling them to predict requirements well in advance and to document training needs in performance terms.

8. With a shift in emphasis to sustainment in the tryout battalion, increased performance to standards was achieved without loss of effectiveness in the other important responsibilities of the battalion. However, in the time available for training at present, only a prioritized set of missions and capabilities can be sustained.

RECOMMENDATIONS

Appropriate USAREUR command action should be taken to evaluate and implement the detailed recommendations contained in this report. In general these deal with:

--Shifting command emphasis from imposing mandatory requirements to specifying performance standards for units.

--Making sustainment rather than peaking the primary responsibility of units through changes in the inspection and evaluation processes.

--Increasing the value of the USAREUR school system by modifying the

allocation process to allow units greater flexibility.

--Initiating the development of on-the-job training support materials.

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The training management model development reported here represents a collaborative effort between the research team and LTC Jim L. Madden, commander of the 1st Battalion 54th Infantry, and the battalion's S-3 staff and subunit leaders. The 1/54 was not simply a test bed for pilot implementation of principles and practices developed by researchers, but rather an active participant in their development and evaluation. The cooperation, commitment, and efforts of LTC Madden and the 1/54 are greatly appreciated.

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BACKGROUND

The Army has made a number of rapid and revolutionary changes to its approach to training over the past few years. For several decades the Army operated on an annual training cycle basis in which units progressed from individual through levels of unit training culminating in an Army Training Test (ATT). At the end of the cycle they started over again. This was done regardless of intervening events or particular needs of individual units. Training was supported by Army Training Programs (ATP), which specified how a program was to be accomplished, and Army Subject Schedules, which specified the content and hours of instruction for ATPs. Under this approach presentation of periods of instruction represented accomplishment of training. The shortcomings of this system were that it did not adjust to unit needs, nor did it contain adequate controls on whether training had occurred or was needed. Training was driven by the calendar. The advantage of the system, however, was that trainees and managers had a well-documented, constant program that was simple to follow.

The overall consensus, however, was that for all the time and motion expended under the cyclical system it did not produce trained units on a responsive, continuous basis. Even had it been working as designed, it was programmed for units to peak once a year. This led to the revolution in the Army's approach to training.

In the late sixties and early seventies the Army began a shift from time-based training to an approach that was generally labeled "performance-oriented training" and arose out of the same training research on methods of instruction that had produced programmed instruction. This approach

to training is generally characterized by the detailed specification of objectives and standards for training that are oriented to observable behaviors or performances as the means of determining whether learning has occurred. Training accomplishment is to be evidenced by performance rather than attendance at periods of instruction. While there were many separate manifestations of the influence of this movement, the most significant single event was the introduction of the Army Training and Evaluation Program (ARTEP).

The transition from a time-based to a performance-based training concept, while lengthy in development, was made rapidly by Army doctrine. ATPs, ATTs, and Army Subject Schedules were replaced by ARTEPs in little more than a year. The Army training literature program began wide scale production and distribution of guidance on how to execute various aspects of performance-oriented training. Subsequent development produced the Training Extension Courses (TEC) as the prime individual training aid and the Skill Qualification Test (SQT) as a performance-test-based personnel management tool.

While all these changes were made in the training systems, personnel responsible for training in units were stripped of the long familiar and overwhelmed with a variety of new approaches. While these innovations all fundamentally flowed from the same philosophy, unit personnel could not quickly assimilate and employ them. So for some time now they have been between the new and the old, often trying to force new concepts into old molds so that they can more easily deal with them.

In the past several years attention has focused increasingly on development and specification of techniques for managing the new training

system at the unit level. The plight of the training manager at the battalion level has been recognized and several aids and documents are under development by the US Army Training and Doctrine Command (TRADOC). The recently published TC21-5-7 "Training Management in Battalions" is the most current guidance on how to execute the new training philosophy at battalion level. It concentrates on managing performance-oriented training and using training diagnosis as the driving force in training.

In looking at the particular requirements of USAREUR it was apparant, both from the mission and the opinions of the commanders, that the greatest need is for the sustainment of critical combat capabilities. While this need is noted in TC21-5-7, more specific procedures are required to satisfy it.

In the USAREUR context sustainment means that at any time the USAREUR battalions must be able to instantly perform their combat missions; that there is no time to "sharpen up" once hostilities begin. The battalion that adopts this approach is to some extent electing to swim upstream, because the principle of sustainment has not yet become a high priority in practice in the larger environment. The factors that presently shape a unit's actual training--ranging from formal evaluations to standing requirements to the many forms of non-recurring directed activities--emphasize peak performance a few times during the year and short-notice response to the changing interests of higher headquarters throughout the year. Additionally, units often are focusing on various advanced, esoteric missions before they achieve minimum acceptable standards on common essential ones. One reason these conditions exist is that there is no mechanism by which battalion commanders can continuously evaluate and define the

combat training status of their unit. Further, accomplishment of sustainment training in USAREUR is made more difficult by the European environment which is characterized by dispersed units, limited training areas, increased human needs on the part of the service members, and a high level of training distractions.

The training management research described in this report then has as its objectives:

1. To develop management techniques that would drive the sustainment of essential combat skills in USAREUR units.
2. To reduce the impact of non-training missions on training while providing for their satisfactory accomplishment.
3. To provide techniques that are fully within the capability of USAREUR personnel to implement.

System Overview

The training management model that has been developed to meet these objectives is focused on the management of testing, based on the premise that evaluation is the driving force in causing training, and also that testing is good training. As such it does not concentrate on training methods per se, but rather on supporting and stimulating the occurrence of training.

The model addresses the specification and integration of eight subsystems identified as critical to battalion operations. Five of these are part of the overall scheduling of activities. They are:

- °Major events - formal evaluations that are recurring and scheduled relatively far in advance, such as battalion ARTEPs, SQTs, major inspections, and annual gunnery periods.
- °Mandatory training - training activities required by higher headquarters.

°Maintenance - a continuing high priority area that must be executed well and coordinated with training.

°Individual sustainment - a new subsystem in which the battalion lays out the best available estimates of testing frequencies required to insure sustainment of individual skills.

°Unit sustainment - a new subsystem in which the battalion lays out the best available estimates of testing frequency required to insure sustainment of collective skills.

The other three subsystems deal with training requirements that must be managed by establishment of unit procedures rather than on a master scheduling basis. They are:

°School training - the programming of unit personnel into the formal school training conducted at Vilseck.

°On-the-job training - the training of unit personnel in new jobs for which they have not been formally trained.

°In-processing - providing for the orientation and personal welfare of unit personnel. Includes in-briefings, Gateway, education, race relations, etc.

With regard to the five subsystems that drive the master schedule, USAREUR units today are primarily focused on the first three: major events, maintenance and mandatory training. Taking care of those items is easily a full time job for the battalion managers, and if they are executed well the commander will be successful. It is also probable that some percentage of critical combat training will be accomplished during the course of all those events. What is not visible in the current system is which important skills are being sustained and which are not. Further, it is

generally contended that while managers are very busy, troops in the lower grades are not, and this is attributed to a lack of understanding of requirements and a lack of responsibility and capability to train.

The two new subsystems designed into the training management model, individual and unit sustainment, are designed to help alleviate the above circumstances. They call for the detailed specification in the form of sustainment objectives of the critical individual and unit capabilities that are to be sustained.

A sustainment objective contains:

- a. a statement of the tasks or mission involved
- b. the frequency with which the battalion will conduct testing to standards
- c. the standards to be applied (referenced to appropriate Soldier Manual tasks or ARTEP standards where possible)
- d. the population to be tested
- e. the achievement level to be achieved as the battalion goal (e.g. 2 per squad; 80% of all divisions, etc.)

These sustainment objectives then provide the basis for programming the battalions training activities and for continuous tracking of which capabilities are being sustained and which are not, and why. In this way both training readiness and its costs can be made visible, and a basis is established for evaluating treatments in terms of trade-offs that must be made.

APPROACH

The model development effort has been done by working on a case study basis with one USAREUR infantry battalion over the course of a year. The major sub-systems impacting on the battalion's operations were identified and various methods for managing them devised in conjunction with the battalion commander and his staff. Some of the identified sub-systems were under the control of the battalion and some were not. For those that were, procedures were designed, tried out and modified or discarded. For those that were not, proposed revised procedures were developed for recommendation to appropriate levels and agencies in USAREUR.

This approach has resulted in a set of procedures that satisfies several critical needs of USAREUR battalions. No information is available on how well other battalions can employ these procedures; that will be evaluated in subsequent phases. The purpose of the work to date was to design solutions to training management problems from the point of view of the battalion. Therefore, these proposed procedures are optimized on battalion level operations.

In the process of identifying the major sub-systems affecting training management in the battalion, several important sub-systems were identified but not treated. One of these, the maintenance sub-system was not addressed because resources did not permit in this phase. It will be addressed in the next phase of the project since the management of maintenance directly impacts on time available for training and the accomplishment of training on maintenance. At this point it appears that the greatest need is to attempt to establish a "maintenance to standards" based approach similar to the "training to standards" one. Maintenance is commonly managed today by

the blanket assignment of all personnel to maintenance for specified periods of time. This means that some crews spend too little time on maintenance and others spend too much. The common perception of the problem generated by this approach is troops spending hours in the motor pool with nothing to do (or doing nothing). A standard-based approach rather than a time-based one should enable better management of this sub-system.

Another sub-system not specifically developed in this effort is the In-processing sub-system. This refers to that part of the personnel system that has training implications such as education, Gateway programs, orientation, etc. Another ARI-USAREUR project, Soldier Orientation and Development, has developed procedures for dealing with these activities on a community basis in USAREUR, and these procedures are reflected in the current model. This system is being pilot tested in a number of USAREUR communities and a report on that program is being prepared.

RESULTS

The major product of the year's model development is a prototype battalion training management guide, which is being published separately. The guide contains the detailed description and procedures for applying the system.

The major finding of the year's try-out is that sustainment-oriented training is feasible in a USAREUR battalion, provided (1) the unit is willing to undertake an extensive "front end" task of establishing objectives and operating systems, (2) the battalion and company leaders are willing and able to sustain a high level of involvement in training management, and (3) the leadership is able to sustain a commitment to objectives that are in accord with the Army's goals but in conflict with many of the Army's current practices.

Specific findings related to the prototype guide and the individual sub-systems are provided below.

Prototype Training Management Guide

The guide has been designed to serve two functions: training and reference. As a training tool, the guide would serve as the primary vehicle for installing the system into battalions, either as a text or conference guide. As a reference, the guide provides concise guidelines for procedures, plus detailed samples of supporting forms, task lists, sustainment frequencies, etc.

The operating assumption in development of the guide was that the basic principles and procedures should be made as simple and as concise as possible. Applying the principles to actual training management, on the other hand, requires mastery of a vast number of details, from the

running of a firing range, to the writing of a pretest for SQT, to the coordination with other units for a river crossing. The most efficient medium for communicating the supporting details is likely to be samples of the products of training management rather than written procedures. The appendices provided with the prototype guide represent a cross-section of training management products in the pilot battalion, and it is expected that these will be improved and expanded during continuing model development and implementation. The guide itself will be evaluated for effectiveness during the next phase of the project.

Priorities

From the outset, the operating assumption in model development was that the battalion could not create time for training by reducing or neglecting the many mandatory training and non-training requirements placed upon it. Maintenance levels would have to be sustained, educational goals would have to be met, guard and detail commitments would have to be fulfilled, etc. The prototype guide's discussion of priorities emphasizes efficiency in meeting the training and non-training requirements placed upon the battalion, with sustainment as the priority objective for all additional training time. The pilot battalion's results to date indicate that such requirements can be satisfied efficiently enough to enable sustainment of individual and collective skills to become the major focus for the unit's available training time.

During early stages of the try-out, while individual and unit objectives were being identified and systematized, possibilities for a procedural submodel for priorities were explored. For example, tasks,

missions, and requirements were coded by priority and listed on individual cards so that short-term scheduling decisions might thus reflect continuing priorities. Similarly, the possibility of decision models for use in scheduling was considered. In practice, however, priorities are addressed adequately (1) in the initial establishment of objectives for the sustainment subsystems and (2) in the long-range scheduling. Available training time today is too limited to schedule more than the top priorities, and these are clear when the annual and quarterly planning decisions are made.

During the initial analysis of requirements, in which all known requirements were first assembled and scheduled it appeared that there was an average of 3 days a week left for sustainment training or 150 days per year.

The time required to accomplish the battalion generated sustainment goals was then computed and it came out to about 180 days. This included all ARTEP missions plus selected supplementary missions and all organic weapons, with Soldier Manual tasks integrated as appropriate. Revisions were then made to tailor the sustainment goals to the 150 days time span without significant loss in coverage. In operation over the course of the year, it was found that ad hoc unprogrammed requirements in fact consumed approximately 1 additional day per week, which had to come out of the training time. The net result is that, with intense management, only about 100 days per year can be devoted to sustainment training. This meant that the sustainment goals have to be reduced, missions deleted or combined, and sustainment training intervals lengthened.

Sustainment of essential combat skills/capabilities of the battalion can be accomplished through careful utilization of 100 days during the year. It will not be the "combat minimums" as stated in ARTEP and soldier manuals. And it most certainly will not occur if battalions are not forced to make explicit their goals in a measurable fashion that they can track and evaluate.

Major Events

The approach found most effective for the handling of major events is both consistent with the training to standards concept and generally practiced by most commanders. It consists to using all possible means to determine what standards and criteria are to be applied to the evaluation of the battalions performance and then performing to those standards as frequently as possible or necessary prior to the actual events.

The approach taken to formal evaluations of the unit in the AGI and ARTEP was applied to the evaluation of individuals in the SQTs as well. SQT and sustainment are not completely mutually supportive due to the different frequencies and somewhat different task coverage. Therefore SQT is treated as a major event separate from sustainment. Management emphasis was placed on making the standards visible in concrete terms through repeated pretesting. Follow-up was delegated, but results were monitored closely. Results suggest that the approach is productive. For example, the AGI was passed even though preparation time had been limited after an extended MTA period, and the first round of SQT tests produced very satisfactory results. The major difficulty in AGI and ARTEP preparation was predicting the criteria that would be applied.

The SQT required preparation of written component pretests and intensive name-by-name tracking of individuals in order to approach 100% pretesting and testing for record.

The SQTs for low-density MOSSs were not addressed in the model try out, because they were not yet in effect. When developed, the management system appropriate to the MOSSs with just a few people per battalion will be an extension of the OJT submodel.

The 11B SQT was done twice, once at the beginning of the test "window" again at the end, with extensive pretesting and follow-up both times. The initial aim was to extend the test for record to more eligible individuals, such as those whose duty assignment is outside the MOS, and to use the pretesting as part of individual sustainment for all in the MOS, whether eligible for testing for record or not. In future, the plan is to schedule only one preparation and testing period, because the time and effort required for the selected SQT tasks are out of balance with their sustainment value. Thus, the SQT will continue as an intensive short-term peaking effort distinct from and in addition to sustainment. However it is expected that an operational sustainment program will reduce the SQT preparation effort required.

Unit Sustainment

The unit sustainment submodel addresses the degradation issue in two ways: (1) by giving priority to quarterly repetition of a core of critical missions for each unit level, (2) by establishing the development of concise mission job aids as a continuing effort.

The basic approach to sustaining the mission capabilities of the battalion and each smaller unit has been to treat each field exercise as a form of ARTEP evaluation. For example, using time allocated to platoon

field training for "practice" of the active defense would not be viewed as satisfactory; rather, the platoons would be expected to conduct assigned missions and to be held accountable for performance to standard. The formality of the exercises and evaluation varies, but the expectation that standards will be applied does not.

The original list of unit sustainment objectives defined by the battalion is shown in Table 1. As has been discussed, these proved too ambitious due to the in-roads made in planned training time by unprogrammed requirements. More importantly, this frequency of sustainment is only an initial estimate, and may be more or less than required. Much additional research is required and planned to accurately determine the proper sustainment intervals.

The sources of standards include ARTEP manuals, field SOPs, leader judgment and Soldier Manuals for those tasks related to the specific missions being evaluated. In practice, application of tactical standards in the field depends most heavily on leader judgment, with the battalion commander's criteria being the most central.

It became increasingly apparent during the year that unit sustainment training could not be based on a diagnosis of past field training. Mission performance degrades much too rapidly for a "go" in one quarter to represent a reliable capability in the next. This rapid degradation is seen less as a function of individual skill or knowledge loss, than as a consequence of turbulence and the absence of in-the-field job aids. For example, a new platoon leader or squad leader could find most of the criteria for a tactical road march in the division's field SOP, but it would be impractical for him to refer to it as the tracks are preparing to leave the assembly area. Consequently, easily mastered practices, such as having the .50 cal MG properly mounted and manned, are not performed in the exercises, and the mission is "no go".

TABLE 1

QUARTERLY SUSTAINMENT MISSIONS

<u>MISSION</u>	<u>ARTEP 71-2</u>	<u>ESTIMATED TIME REQUIRED</u>
1. Battalion Level Tactical Proficiency		
- Movement to Contact	Ch 8, Ap 1	6 days
- Hasty Attack	Ch 8, Ap 2	
- Deliberate Attack	Ch 8, Ap 3	
- Exploitation	Ch 8, Ap 4	
- Night Attack	Ch 8, Ap 5	
- Active Defense	Ch 8, Ap 6	
- Delay	Ch 8, Ap 7	
- Disengage (Under Enemy Pressure)	Ch 8, Ap 8	
- Defense of Builtup Area	Ch 8, Ap 9	
2. Rifle Company Tactical Proficiency		
- Movement to Contact	Ch 8, Ap 10	6 days
- Hasty Attack	Ch 8, Ap 11	
- Deliberate Attack	Ch 8, Ap 12	
- Night Attack	Ch 8, Ap 14	
- Active Defense	Ch 8, Ap 15	
- Delay	Ch 8, Ap 16	
- Prepare Strongpoint	Ch 8, Ap 17	
- Disengage Under Enemy Pressure	Ch 8, Ap 18	
- Defense of Builtup Area	Ch 8, Ap 19	
3. Headquarters Company Field Prof (incorporate in task 1)	Ch 8, Ap 20	2 days

TABLE 1 (cont)

	<u>ARTEP 71-2</u>	<u>ESTIMATED TIME REQUIRED</u>
4. Rifle Platoon Tactical Proficiency		4 days
- Movement to Contact	Ch 8, Ap 21	-
- Hasty Attack	Ch 8, Ap 22	-
- Active Defense	Ch 8, Ap 23	-
- Defense of Builtup Area (accomplish during task 2)	Ch 8, Ap 24	-
- Prepare Strongpoint (accomplish during task 2)	Ch 8, Ap 25	-
- Provide Defense Against Aircraft (training aids not currently available)	Ch 8, Ap 26	-
- Conduct Deliberate Attack (Live Fire)	Ch 8, Ap 27	-
5. Rifle Squad Tactical Proficiency		-
- Movement to Contact	Ch 8, Ap 29	4 days
- Reconnaissance Patrol	Ch 8, Ap 30	-
- Forced March/Live Fire	Ch 8, Ap 31	-
- Anti-Armor Ambush	Ch 8, Ap 32	-
- Defense of a Builtup Area (accomplish during task 2)	Ch 8, Ap 33	-
6. Scout Platoon Tactical Proficiency		5 days
- Conduct Route Reconnaissance	Ch 8, Ap 35	-
- Conduct Screen	Ch 8, Ap 36	-
- Conduct Area Reconnaissance	Ch 8, Ap 37	-
- Conduct Zone Reconnaissance and Hasty Attack	Ch 8, Ap 38	-
7. Scout Squad Tactical Proficiency	Ch 8, Ap 39	4 days
8. 107mm Mortar Platoon Tactical/ Firing Proficiency	Ch 8, Ap 41	4 days

TABLE 1 (cont)

	<u>ARTEP 71-2</u>	<u>ESTIMATED TIME REQUIRED</u>
9. 81mm Mortar Platoon Tactical/Firing Proficiency	Ch 8, Ap 42	4 days
10. Redeye Section Tactical Proficiency	Ch 8, Ap 43	4 days
11. Ground Surveillance Team/Section Tactical Proficiency	Ch 8, Ap 44	
12. Breeching a Minefield (Integrate into tasks 2 & 6)	Ch 9, Ap 1	
13. Operate in an EW Environment (Integrate into tasks 1,2,6-11)	Ch 9, Ap 2	
14. Passage of Lines (Integrate into tasks 2,6,8,9,10,11)	Ch 9, Ap 3	
15. Defense Against Air Attack (Integrate into tasks 4,6,8,9,10,11)	Ch 9, Ap 4	
16. Treatment and Evacuation of Casualties (Integrate into tasks 1,4,6,8,9)	Ch 9, Ap 5	
17. NBC Protective Measures (Integrate into tasks 1,2,6,7,9,10)	Ch 9, Ap 6	
18. Crossing a Water Obstacle (Integrate into task 1)	Ch 9, Ap 7	
19. Processing Prisoners of War (Integrate into task 1)	Ch 9, Ap 8	
20. Movement Techniques (Integrate into task 1)	Ch 9, Ap 9	
21. Tactical Movement (Integrate into task 1)	Ch 9, Ap 10	
22. Operation Security (Integrate into task 1)	Ch 9, Ap 12	
23. Install a Hasty Protective Minefield (Integrate into tasks 2,6)	Ch 9, Ap 13	

SUPPLEMENTAL MISSIONS SUMMARY		<u>1</u>	<u>2</u>	<u>4</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
		Bn	Rifle Co	Rifle Plt	Sgt Plt	Sgt Sqd	107mm Mort Plt	81mm Mort Plt	Red- eye	GSR
Breeching a Minefield	Ch 9, Ap 1		*		*					
Operate in an EW Environ- ment	Ch 9, Ap 2	*	*		*	*	*	*	*	*
Passage of Lines	Ch 9, Ap 3		*				*	*	*	*
Defense Against Air Attack	Ch 9, Ap 4			*			*	*	*	*
Treatment and Evacuation of Casualties	Ch 9, Ap 5	*		*	*		*	*		
NBC Protective Measures	Ch 9, Ap 6	*	*				*	*	*	
Crossing a Water Obstacle	Ch 9, Ap 7	*								
Processing Prisoners of War	Ch 9, Ap 8	*								
Movement Techniques	Ch 9, Ap 9			*						
Tactical Movement	Ch 9, Ap 10	*								
Operation Security	Ch 9, Ap 12	*								
Install a Hasty Pro- tective Minefield	Ch 9, Ap 13		*		*					

In the sustainment model as information is gained from both internal and external evaluations (ARTEP, SQT, FTX, CPX, etc.) it is used to update the status chart on the battalion (See Table 2). In this way it provides the necessary data for subsequent planning decisions. If, for example, during an evaluation the unit is unsatisfactory on crossing water obstacles, it does not necessarily immediately undertake training on that mission. The battalion will annotate its status chart to indicate that it was evaluated and found unsatisfactory during the quarter on that mission. Then a decision has to be made as to whether to increase the frequency of such training, conduct it sooner than programmed or to ignore it in favor of other more critical needs. The battalion may choose to continue to sustain more essential missions, but the brigade may look at the situation and reverse that decision. Then with the status chart they could negotiate where the time is to come from (i.e. what to replace) and any support required from brigade to accomplish the training. In this way overt, front end decisions can be made about training priorities rather than the more typical way of making arbitrary last minute decisions. As these adjustments to the sustainment schedule are made over time, missions and capabilities that can be sustained over several quarters without treatment and those that cannot, will become evident.

During the tryout it was found that this sustainment approach drove training in two ways. First, through the process of setting forth specific sustainment goals, evaluation criteria and frequencies and then following through as announced, unit personnel learn that the battalion is serious about sustainment and that they will be held accountable for performance. This is the most important aspect of the system. Second, it was found

UNIT SUSTAINMENT STATUS

		Quarter											
		1			2			3			4		
<u>BN</u>	Movement to Contact	S			P			P					
	Hasty Attack	S			P			P					
	Deliberate Attack	US			P			P					
	Exploitation	UP			P			P					
	Night Attack	UP			P			P					
	Active Defense	S			P			P					
	Delay	UP			P			P					
	Disengagement	S			P			P					
	Def. of Blt. up Area	UP			P			P					
<u>HQ CO</u>		UP			P			P					
<u>Sct Plt</u>	Route Recon	US			P			P					
	Screen	US			P			P					
	Area Recon	US			P			P					
	Zone Recon	US			P			P					
		A	B	C	A	B	C	A	B	C	A	B	C
<u>Co</u>	Movement to Contact	S	US	US	P	P	P	P	P	P			
	Hasty Attack	S	S	S	P	P	P	P	P	P			
	Deliberate Attack	UP	UP	UP	P	P	P	P	P	P			
	Night Attack	US	US	US	P	P	P	P	P	P			
	Delay	S	S	S	P	P	P	P	P	P			
	Strong Point	UP	UP	UP	P	P	P	P	P	P			
	Disengagement	UP	UP	UP	P	P	P	P	P	P			
	Def. of Blt. up Area	UP	UP	UP	P	P	P	UP	UP	UP			
	Active Defense	S	S	S	P	P	P	P	P	P			
<u>Rfl Plt</u>	Movement to Contact	6S			P			P					
	Hasty Attack	3S			P			P					
	Active Defense	2S			P			P					
	Def. Against Aircraft	UP			UP			UP					
	Deliberate Attack	7S			P			P					
<u>Rfl Sqd</u>	Movement to Contact	18S			P			P					
	Recon Patrol	14S			P			P					
	Rd March/Live Fire	UP			P			UP					
	Ambush	7S			P			P					
<u>Sct Sqd</u>	Proficiency	UP			P			UP					

TABLE 2 (cont)

UNIT SUSTAINMENT STATUS

	Quarter			
	1	2	3	4
<u>Suppl. Missions</u>				
Breaching Minefield	UP	P	P	
NBC	US	P	P	
Passage of Lines	US	P	P	
Def. Against Air Attack	US	P	P	
Evac. of Casualties	S	P	P	
NBC Measures	US	P	P	
Cross Water Obstacles	UP	UP	UP	P
Prisoners of War	UP	P	P	
Mvt. Techniques	S	P	P	
Tactical Mvt.	US	P	P	
Opns. Security	UP	P	P	
Install Minefield	UP	P	P	

Legend:

S = Satisfactory

US = Unsatisfactory

P = Planned

UP - Unplanned

that this procedure ~~results~~ in a build-up of trained personnel in a unit who can both instruct and "model" for untrained personnel. This resulted in successively higher level of training achievement in subsequent evaluation periods for a given skill area.

Individual Sustainment

In model development that preceeded work with the pilot battalion, a management subsystem for battalion-coordinated classes was planned. In practice, the need for classes as part of the sustainment system has yet to become apparent. From a battalion perspective, instruction is a scheduled event primarily only when classroom hours are a mandatory requirement. Tests events are the main unit of sustainment planning.

Based on several different approaches to individual sustainment considered for the pilot battalion (independent periodic evaluation of SM tasks, integration of all related task training with ARTEP), it appears that the most feasible approach is to relate soldier manual tasks to their primary weapon or mission for evaluation. They then become part of the standard for the evaluation of that weapon or mission and are sustained on that basis.

The initial analysis of Soldier Manual tasks indicated the general types of training with which the tasks would be integrated and covered. Table 3 shows how they were assigned, the estimated time required to test and how often they will be evaluated by the battalion.

Weapons-related skills provide the best examples of the individual sustainment system, because the battalion's firepower was given the earliest priority in development. First, the soldiers manual skills related to each weapon were combined with the appropriate firing tables to form consolidated qualification standards. (See Table 4) Then the standards were put into effect on a planned frequency. Familiarization firing was in no case an objective. In the first quarter's firing, range management proved a

TABLE 3
SOLDIER MANUAL TASK SUSTAINMENT ALLOCATION

11B SOLDIERS MANUAL TASKS

	Tactical	Weapons	Individual	Time	Annual Frequency
1st Aid			x	1/2	2
NBC			x	1	4
PT			x	1/2	52
Mvt Techniques	x				
Arty Fire	x		x	1	4
Camouflage	x				
Security/Intel	x				
Commo	x		x	2	2
Night Vision		x		1/4	4
M16		x		2	2
M203GL		x		1	2
LAW		x		1/2	4
.45		x		1	2
M60MG		x		1-1/2	4
Dragon		x		2(?)	4
Hand Grenades		x		1/2	1
Mines		x		1	2
Demolitions		x		1/2	2
Wheeled Vehs			x(drivers)	2	
Tracks			x	2	
Leadership			x(NCO)	3/8	2
Training			x(NCO)	1/2	2
Basic Tactics	x				
Specialized Missions	x				
Offensive Missions	x				
Defensive Missions	x				
Admin			x(NCO)	1/2	2
TOW		x		2(?)	4
Operations			x(S3)		
Route Recon	scouts		scouts		

Note: Tactical = Integrated with Field Training Exercises

Weapons = Integrated with Range Firing

Individual = Sustained in Other Events

TABLE 4

SOLDIER MANUAL TASKS COVERED IN WEAPONS SUSTAINMENT

QUARTERLY SUSTAINMENT

<u>Req No.</u>	<u>Requirement</u>	<u>Reference</u>	<u>Time Required</u>
	<u>M60 Machinegun Qualification (Two personnel per rifle squad).</u>		2 days and 2 nights
	- Load, reduce a stoppage, unload and clear an M60 machinegun	FM 7-11B1, p. 2-III-E-1	
	- Engage targets with an M60 machinegun Qualify as 1st Class gunner	FM 7-11B1, p. 2-III-E-2	
	- Zero an M60 machinegun	FM 7-11B1, p. 2-III-E-6	
	- Mount/dismount an AN/PVS-2 (Starlight Scope) on an M60 machinegun	FM 7-11B1, p. 2-III-E-8	
	- Zero an AN/PVS-2 (Starlight Scope) to an M60 machinegun	FM 7-11B-1, p. 2-III-E-9	
	<u>Caliber .50 Machinegun Qualification (Driver, Vehicle Commander and Gunner on Each Vehicle Armed with a cal .50 MG)</u>		1 day and 1 night
	- Zero a .50 cal machinegun	FM 7-11B1, p.-III-F-2	
	- Load, reduce a stoppage, unload and clear a .50 cal machinegun	FM 7-11B1, p. 2-III-F-3	
	- Engage targets with a .50 cal machinegun	FM 7-11B1, p. 2-III-F-4	
	- Set headspace timing on a .50 cal machinegun	FM 7-11B1, p. 2-III-F-5	
	- Mount/dismount AN/TVS-2 sight on a .50 cal machinegun	FM 7-11B1, p. 2-III-F-6	

TABLE 4 (cont)

<u>Req No.</u>	<u>Requirement</u>	<u>Reference</u>	<u>Time Required</u>
	- Boresight AN/TWS-2 sight to .50 cal machinegun	FM 7-11B1, p. 2-III-F-7	6 days
	<u>Dragon Qualification</u> (Two personnel per rifle and court squad)		
	- Perform preoperational checks on Dragon system	FM 7-11B1, p. 2-III-H-2	
	- Engage targets and perform misfire procedures with the Dragon	FM 7-11B1, p. 2-III-H-4	
	- Qualify as 1st Class gunner on Tables VII-X	TC23-20, p. 105-107	12 days
	- Answer at least 17 questions correctly on written test	TC23-20, p. 109-111	
	<u>TOW Qualification</u> (All personnel assigned to TOW platoon and scout squads equipped with the TOW)		
	- Load, correct malfunctions, unload, clear TOW	FM 7-11B1, p. 2-III-J-2	
	- Engage targets with TOW (Qualify as 1st Class gunner)	FM 7-11B1, p. 2-III-J-3	
	- Make TOW launcher self-test and pre-operational inspection	FM 7-11B1, p. 2-III-J-4	
	- Answer at least 20 questions on written test	TC23-20, p. 138-139	

TABLE 4 (cont)

ANNUAL AND SEMIANNUAL SUSTAINMENT

<u>Req No</u>	<u>Requirement</u>	<u>Reference</u>	<u>Time Required</u>
	<u>M16A1 Rifle Qualification (All personnel assigned on M16A1 rifle)</u>		3 days and 2 nights semi-annually
	- Load and unload an M16A1 rifle magazine	FM 7-11B1, p. 2-III-A-2	
	- Load, reduce a stoppage, unload and clear an M16A1 rifle	FM 7-11B1, p. 2-III-A-3	
	- Zero an M16A1 rifle	FM 7-11B1, p. 2-III-A-4	
	- Engage targets with an M16A1 rifle (minimum qualification score is Marksman)	FM 7-11B1, p. 2-III-A-5	
	- Mount/dismount AN/PVS-2 on M16A1 rifle*	FM 7-11B1, p. 2-III-A-7	
	- Zero AN/PVS-2 when mounted on M16A1 rifle*	FM 7-11B1, p. 2-III-A-8	
	- Engage targets with a rifle using AN/PVS-2*	FM 7-11B1, p. 2-III-A-9	
	* Required only by soldiers assigned to rifle squads		
	<u>M203 Grenade Launcher Qualification (2 personnel per rifle squad and all other personnel armed with an M203)</u>		1 day semi-annually
	- Load, unload and clear an M203 grenade launcher	FM 7-11B1, p. 2-III-B-2	
	- Zero an M203 grenade launcher	FM 7-11B1, p. 2-III-B-3	
	- Engage targets with an M203 grenade launcher and apply immediate action to reduce a stoppage	FM 7-11B1, p. 2-III-B-4	

TABLE 4 (cont)

<u>Req No</u>	<u>Requirement</u>	<u>Reference</u>	<u>Time Required</u>
	<u>.45 Caliber Pistol Qualification (All personnel armed with a .45 cal pistol)</u>		2 days semi-annually
	- Load, reduce a stoppage, unload and clear a .45 cal pistol	FM 7-11B1, p. 2-III-D-2	
	- Engage targets with a .45 caliber pistol	FM 7-11B1, p. 2-III-D-3	
	<u>LAW Qualification (All personnel assigned to rifle squads and 30% of all teams, sections and/or platoons)</u>		
	- Prepare a LAW for firing and restore LAW to carrying configuration	FM 7-11B1, p. 2-III-C-1	
	- Engage targets with a LAW	FM 7-11B1, p. 2-III-C-2	
	- Apply immediate action to correct a malfunction on a LAW	FM 7-11B1, p. 2-III-C-3	
	<u>Indirect Fire Qualification (Rifle company commanders, rifle platoon leaders and platoon sergeants and scout platoon leader and platoon sergeant)</u>		
	- Explain when bracketing and creeping method of adjustment should be employed	Creeping method of adjustment is used whenever the target is within 400 meters of friendly troops	
	- Call for/adjust indirect fire using grid coordinate method of target location and bracketing method of adjustment	FM 7-11B1, p. 2-II-A-7	
	- Call for/adjust fire using creeping method of adjustment	FM 7-11C1, p. 2-IV-A-2	

TABLE 4 (cont)

<u>Req No</u>	<u>Requirement</u>	<u>Reference</u>	<u>Time Required</u>
	<u>Claymore Mine Qualification (Two soldiers per rifle squad)</u>		1 day annually
	- Install/recover an electrically armed Claymore mine	FM 7-11B1, p. 2-IV-B-1	
	- Fire a Claymore mine	FM 7-11B1, p. 2-IV-B-2	
	<u>Handgrenade Qualification (All personnel assigned to rifle squads)</u>		
	- Engage enemy targets with handgrenades	FM 7-11B1, p. 2-IV-A-2	1 day annually

major challenge. (It had been roughly six years since the battalion had fired the M60 MG for qualification, for example.) The first round results were also disappointing, qualifying less than one-third of the machine gunners, for example, despite considerable recycling of the "no gos" through the range. However, within three quarters, qualification on the ranges was beginning to approach the sustainment objectives for the major weapons systems, and squad leaders were beginning to appreciate the significance of personal accountability for results (e.g., that qualification meant a "go" on all tasks, not simply on the firing tables).

Instruction does take place for weapons skills, but in most cases it is neither directed nor scheduled. Generally, it takes the form of coaching by peers and small unit leaders just prior to test performance.

Experience with the other two main groups of sustainment tasks--tactical and non-tactical performance to standard with relevant soldier manual skills integrated into the tactical context is being applied. For those tasks integrated into FTXs, no attempt is made to diagnose either unit or individual weaknesses in advance; the exercises are run as unit performance to standard, and officers and NCOs "walk the line" to check on the individual tasks related to the mission at hand. An effort is underway to identify any critical tasks that will not be sustained through performance of the core sustainment mission (e.g., crossing of obstacles and reaction to flares, which would not be performed unless the necessary resources were obtained and built into the unit missions). Also soldier manual tasks are being related to one ARTEP mission in which they will be specifically evaluated. Thus, if a task is evaluated during preparation for "platoon in the defense" it will not be re-evaluated during other missions in which it is required.

A continuing challenge is the name-by-name tracking necessary to meet qualification objectives on the MTA ranges. The difficulty is not

in recording results but in ensuring that the right people are at the right ranges at the right time, rather than performing details or firing on a range for the wrong weapon. The tracking is not the product of a "job book" effort designed to monitor each individual, but rather a coordination effort designed to provide a minimum number of qualified gunners for each of the battalion's weapons. At the battalion level the same tracking system is used as for unit sustainment as shown in Table 5.

The pilot battalion's experience in weapons sustainment indicates that current levels of ammunition allocations are not sufficient for sustainment needs. For example, the battalion expects to be able to qualify .50 caliber machine gunners only once in the coming year, and the subcaliber machine gunners only once in the coming year, and the subcaliber ammunition for LAW is apparently even below that level. For TOW and Dragon sustainment firing is accomplished only by borrowing equipment from other units, charging batteries around the clock seven days a week, and conducting firing during a solid three-week period.

Mandatory Training

In the front end effort, all known training requirements were determined, treating as "mandatory" any training that is not optional for the battalion. Various groupings of requirements were analyzed, with the final approach being: (1) identify all requirements, (2) where appropriate incorporate requirements into the other subsystems such as unit sustainment and in-processing, (3) group the remaining requirements by frequency as standing inputs for scheduling.

TABLE 5

WEAPONS SUSTAINMENT STATUS

	1	2	3	4
HV Mort Plt	US	P	P	
A Co Mort Plt	US	P	P	
B Co Mort Plt	S	P	P	
C Co Mort Plt	US	P	P	
Redeye Soc	S	P	P	
M60 MG	37/54	P	P	
.50 CAL MG	93/291	P	P	
DRAGON	37/62	P	P	
TOW	68/78	P	P	
INDIR FIRE	UP	P	P	
M16A1 RIFLE	253/567	P	P	
M203 GL	UP	P	UP	
.45 CAL PISTOL	97/142	P	UP	
LAW	57/323	P	P	
CLAYMORE	UP	P	UP	
HANDGRENADE	UP	P	UP	

This approach deals only with standing requirements, not with non-recurring requirements communicated in letters, TWXs, Telephone calls, and other directives. At this point, it seems that the standing requirements can, in fact, be incorporated into the battalion's scheduling throughout the year, once the front end effort necessary to produce a master listing has been completed. The ad hoc requirements will have continued to be handled on a crisis management basis so long as they continue to be imposed.

OJT

The OJT submodel was developed through interviews with six supervisors responsible for conducting OJT and analysis of eight jobs identified by the commander as typical of the unit's OJT practices and problems. It is intended for use in training low density non-combat arms MOS's that are not treated by the unit and individual submodels. The analytical model used is described in Appendix A. Two major impressions were formed during the analysis: (1) that where OJT problems exist, they produce chronic under-achievement, (2) that traditional schoolroom patterns persist as a model for OJT. On the one hand, OJT performance problems are seldom acute enough to prompt a major training effort; rather, they represent problems such as delays in ordering parts or meeting suspenses, additional work in retyping correspondence and redoing forms, and a continuing extra load on supervision. On the other hand, the "solution" the supervisor is likely to think of first is to take his own time to prepare lesson plans for one or a few individuals and then to divert the OJT trainees from current work assignments to give them a class on job procedures. This classroom approach seldom proves practical for long, and chronic underachievement becomes, by default, the only viable alternative. The supervisory consequences of inadequate OJT further reduce the time available to prepare or conduct

The model seeks to provide a performance-oriented alternative for the supervisor, focusing on job resources and job consequences rather than instruction. The major avenues for OJT improvement identified in the guide are:

°Overlap - starting OJT assignments early enough to provide training and continuity.

°Job Aids - equipping the trainee with the task lists, standards, checklists, and samples needed to determine for himself on the job whether his performance meets criteria.

°Job Feedback - systematic monitoring the products of performance (e.g., through inspections) to shape the quantity and quality of the work.

°Certification - developing or obtaining performance tests for third-party certification of completed OJT.

It is apparent both that the battalion's capabilities in the above areas are limited and that near-term OJT improvement cannot rely on published OJT resources alone. The extent to which the battalion will be able to upgrade the resources and feedback provided OJT trainees is a continuing research question.

Schools

Analysis of the battalion's existing practices in utilization of USAREUR and division schools indicated that the major shortcomings were largely outside the battalion's control. Recommendations for revision in the school allocation system are provided in Appendix B.

The major opportunities for improved management of this subsystem within the battalion are: (1) coordination with OJT in a systematic

quarterly manpower plan, (2) establishment and use of guidelines for priority of attendance. The submodel further suggests brigade-wide pooling of school allocations as a means of predicting receipt of slots for specific courses with greater assurance, and subsequently allocating school slots in greater accord with unit priorities.

In-processing

As mentioned earlier, the in-processing submodel is the product of a separate ARI research effort on soldier orientation and development. The submodel incorporates procedures that have been implemented within the 21st Support Command but have not at this point been implemented in the pilot battalion's community. Implementation is expected to be complete during FY 78.

Scheduling

Previous model development envisioned four distinct planning cycles: annual, quarterly, monthly, and weekly. For the pilot battalion, the cycles that have proven most functional in the first year's try out have been:

- °Semi-annual projections of a year's calendar.
- °Quarterly scheduling of events and identification of needed resources for six months of training.
- °Weekly planning of detailed schedules for the following three or more weeks.

The scheduling submodel also identifies event planning as a distinct function that derives from the quarterly scheduling/resource identification and that operates with varying lead times appropriate to the events.

Summary

. Because the individual and unit sustainment subsystems provide the master road map for sustaining training readiness, it is important that time be made available to execute the training required. The necessary time must be derived from two sources - existing unused or under-used troop time, and time presently consumed by mandatory requirements. The improved utilization of troop time will be facilitated by the continuing introduction of improved management techniques and individual training materials that are under development. The reduction of mandatory requirements, however, can only be accomplished through concerted action at every level of command.

In order for the individual and unit sustainment subsystems to become fully effective, emphasis must be shifted to them from the mandated training approach. Rather than passing along solutions that are unilaterally imposed on everyone, higher commands must orient on the specification of outcomes desired. Then units can address the problem areas on an integrated basis with the rest of their requirements. In addition, the present load of non-training requirements is extensive and greatly reduces available training days.

In summary, the establishment and enforcement of a regular testing to standards program by the battalion is in itself a major step in the accomplishment of training. A standards-based training management system also provides the battalion commander considerable leverage in getting resources, defining weaknesses, and legitimizing his need for time to train. Today the statement by a battalion commander that he "needs more time to train" falls on sympathetic but unresponsive ears. By having visible the battalion's progress in meeting specific sustainment standards and goals, a battalion commander can substantiate his needs as well as accurately

forecast his requirements for training areas, ammunition, and devices. In this way training requirements can begin to drive resources rather than the other way around.

It was expected at the outset that the presence of long-range sustainment-oriented schedules would to some degree protect the battalion from short-notice taskings by higher headquarters and at the same time improve the battalion's ability to justify requests for maneuver areas and ranges. From the battalion commander's perspective, these expectations have been met; both access to resources and the ability to schedule sustainment events have been enhanced by virtue of a long-range, detailed sustainment plan.

From the day-to-day perspective of the S-3 section, however, schedule changes are the rule rather than the exception. As one officer described it, "The closer we get to the event, the more things change" as a result of changing dates, guidance, and directives from higher headquarters. In other words, the non-recurring aspects of mandatory training--requirements communicated by telephone, TWX, and letter rather than set forth in the Reg 350-1--continue to have a major impact on the unit's ability to plan and execute training beyond the near term.

In sum, the first year's try-out indicates that long-range planning is necessary for sustainment, that it improves the unit's ability to obtain training time and resources, but that it is not in itself sufficient to insulate the unit from the adverse impacts of the larger environment.

RECOMMENDATIONS

The major recommendations resulting from development and try-out of training management methods are:

1. Continue methods development, implementation, and evaluation.

In addition to continuing the second year of development and try-out with the pilot battalion, the methods should be implemented in other USAREUR units and the impact on readiness of equipment, personnel, and units evaluated.

2. Improve the manageability of training in USAREUR.

Changes in a wide range of programs, practices, and procedures would facilitate the USAREUR battalion's ability to sustain a high level of individual and collective proficiency.

3. Make sustainment a USAREUR-wide priority in practice as well as in principle.

The influences of higher headquarters on training within battalions are currently counter-sustainment in their impact and should be modified to promote year-round combat proficiency.

Improved Manageability

In developing methods for managing training within the battalion, the policies and practices of the larger environment were taken as a given. However, in each of the management subsystems it was apparent that changes in the factors outside the battalion's control would contribute to the manageability of training. The major opportunities for improvement identified during model development are as follows:

Major Events

- In general, prior communication of the detailed criteria for formal evaluations should be improved.
- For the ARTEP, select the missions to be tested to form a minimum core of sustainment missions and communicate the selection early in the year.

- For the AGI, eliminate inspection of training on paper except for requirements that represent attendance requirements rather than performance requirements.
- For the SQT, provide written component pretests to reduce the burden on the units, improve the quality of the pretests, and prevent compromise of the test itself.
- Develop guidelines for managing the preparation for and conduct of SQTs for the low-density MOSSs. Guidelines can establish the expert resources available outside the battalion, but should not prescribe the conduct of training within the unit.

Unit Sustainment

- Standing requirements for missions specific to the USAREUR environment, such as river crossings, should be treated as additions to the ARTEP, with appropriate standards for mission performance and objective evaluation.
- Models for mission job aids, as described in the prototype guide, would reduce the time needed for a unit to bring mission performance capabilities up to the sustainment level. The job aids provide on-the-spot reference for subunit leaders.

Individual Sustainment

- Develop and provide practical methods for evaluating performance in the appropriate context: firing range events, FTXs, or sweepstakes training. Some standards in the soldiers manuals are written for testing in individual stations, as is appropriate in AIT, and do not lend themselves to application in integrated individual and unit training.

- A comprehensive listing of the interrelationships between 11-series MOS tasks and ARTEP missions has already been developed by TRADOC. Refinement of this list to highlight tasks that would not be covered by a core of sustainment missions would be useful for managing individual sustainment, as would indicating lead missions for covering each soldier manual task so as to facilitate the accomplishment of training.

Mandatory Training

- All standing requirements for training, whether categorized as "mandatory" or not, should be identified in the Reg 350-1 published by each headquarters.
- As a minimum, each headquarters should provide in the regulation a master list of nonoptional training for subordinate units. The list should be organized by frequency and by positions or by groups to which the requirements apply.
- The total training time represented by the master list of requirements should be estimated, and a command determination of the appropriate balance between these requirements and the time needed for sustainment should be made.
- Non-recurring training requirements should be limited to the launch of new systems and to the exceptional emergency need (see below).

OJT

- Training resources should be developed for use on the job, rather than requiring the learner to be taken off the job for instruction.
- Certification tests should be provided for the award of a secondary MOS. One possibility is to make provision for use of the SQT for secondary MOSs.

- Unit trainers should be trained in practical application of feedback methods to shape the quantity and quality of work performed.
- Requirements for paperwork related to the conduct of OJT should be eliminated as counterproductive and replaced by improved procedures for certifying the products of OJT. (See Appendix A).

Schools

- The present allocation-by-request system should be modified to provide brigades with flexible quotas approximately one month before the start of each school quarter.
- Allocations to brigades should be accompanied by fund citation numbers to permit orders to be cut locally and to allow final determination of school attendance to reflect brigade-wide priorities.
- Allocations within brigades should be prioritized on the basis of contribution to unit performance.
- The extent to which current school capacities meet high priority needs of the units should be evaluated.
- Detailed procedures are provided in Appendix B.

In-processing

- USAREUR-wide implementation of the community/brigade in-processing system should continue.

Scheduling

- Changes or additions to the training schedules of subordinate commands should be made only if the integrity of long-range sustainment planning can be maintained, insofar as possible. For example, the battalion's sustainment schedule for the first and second quarter is planned in late September, and any significant training commitments from higher headquarters should be firm before mid-September.

- Higher headquarters can retain the necessary training flexibility by (1) planning the time blocks needed to sustain their own mission capabilities, and (2) committing to a long-range calendar that will accommodate changes in training priorities closer to the events.
- In general, prescribing training for subordinate units for remedial purposes is counterproductive and should be replaced by improved communication of the sustained performance capabilities expected by each command level. Directed training is a short-term solution only, and the costs of conducting it include loss of the integrity of the sustainment system.

Sustainment Priority

In practice, training priorities are communicated to USAREUR battalions far more forcefully by formal evaluations and by the everyday flow of communications than they are by statements of principle in documents such as Reg 350-1. Currently, the effective message to the battalion commanders is that they will be successful if (1) they produce peak performance for events such as the AGI and ARTEP, (2) they schedule classes in required subjects, and (3) they plan training on a short-term basis that is responsive to short-term direction from higher headquarters. As a consequence, performance oriented sustainment training is a low priority. To make sustainment a priority in practice as well as in principle, higher headquarters could consider adopting the following practices:

- Identify the core sustainment missions appropriate to each echelon--as described for battalions in the prototype guide--estimate the time necessary and available, and commit to a long-range calendar.
- Respond to training shortfalls diagnosed in subordinate units by

clarifying the standards the units are expected to meet or improving the units' resources for meeting them on a continuing basis, rather than by directing remedial training.

- Eliminate reporting requirements that foster either a short-term focus for planning or a traditional classroom approach to training, such as weekly training schedules, attendance records, and lesson plans or POIs.
- Develop and communicate sustainment guidelines, providing subordinate units with estimates of the frequency with which missions and tasks need to be performed to standard. However, requirements to report results should not be imposed; rather they should be the basis for discussions of direction, emphasis, and resources between senior and subordinate commanders.
- Consider modifying the conduct of major evaluations so they are measures of sustained performance rather than peak performance. For example, if inspections such as the AGI and field evaluations such as the ARTEP were put on a no-notice or short-notice basis, and if the criteria were modified to reflect an acceptable level of sustained performance, then sustainment would quite clearly be each unit's primary accountability. (The SQT should remain on the current long-notice basis, although individual skills could also be tested on a no-notice basis for sustainment evaluation purposes.)

At issue in these recommendations is not whether higher headquarters should seek to influence training in the battalions, but how. Clearly each commander is accountable for the training readiness of subordinate units. Currently, the methods used to meet this basic accountability influence training in traditional instruction-oriented rather than performance-oriented ways, and they place a higher priority on peak performance and short-term remediation than on sustained combat capabilities.

The OJT (On-the-Job Training) sub-model is to describe the essentials of an effective approach to this kind of training. The analysis indicates that several distinctly different approaches are needed, depending on certain critical job characteristics.

The sub-model deals with two major aspects of OJT: job performance and administration. In administrative terms, OJT is the process of awarding a secondary military occupational specialty (SMOS); school-trained people serving in their primary MOS (PMOS) and cross-trained people serving temporarily outside their normal MOS are not covered by OJT administration. In job performance terms, the administrative distinctions are not relevant; the unit's concern is with developing satisfactory performance in a newly assigned soldier, and the basic processes are the same regardless of prior schooling or MOS classification.

Description of General Job Model

The general model for job performance aspects of OJT is presented in Figure 1. Different jobs tend to emphasize only certain aspects of this model while other aspects are insignificant, as will be discussed in subsequent sections.

The block at the top represents job information, which may be critical or not, depending upon the level of technological information needed for job performance (e.g., a TOW gunner needs to know very little technical information, but a TAMMS clerk needs to know much about the various forms and logs and how to fill them out.) The translation of job information is a matter of putting it into a comprehensible form; this is primarily a matter of putting it in the same sequence

the person uses on the job, and also a matter of realistic (e.g. pictorial) simulation of the job elements involved.

The job information must be transmitted to the person, either in person, or by printed instructions or some other medium. When instructions are transmitted personally, the instructor (or supervisor) must take time to prepare it and present it when the learners are available, or peers may provide the information on a less formal basis.

At the level of learning activity, three situations are distinguished: preparing to perform, practicing, and actually performing the job. One of the difficulties with OJT is that people often think first of classes, because they are the traditional instructional situation, when it is usually more effective to practice or to actually perform the job. An additional difficulty with combat MOSs is that people cannot actually perform the job, short of war.

One note of caution concerns safety. Even though the general thrust of this model is to rely more on job activity, safety considerations often must be introduced before job performance, if the person is apt to put himself, others, or the equipment in danger. In such instances, the dangerous job aspects need to be identified, discussed and practiced before performing the job.

The bottom row of the model distinguishes various means of monitoring performance. In any systematic training or performance system, there must be a means of evaluating the performance of the job. The mode of evaluation depends upon the type of training and the availability of information in the job itself.

Along the dotted line, between transmission of job information and the person's performance, is the human thinking process, represented in Figure 2. One significant fact about the process is that a person's short-term memory has very limited capacity (technically about seven "chunks.") The short-term memory corresponds to one's immediate awareness, or what a person is "thinking of" at any particular moment. Numerous experimental studies indicate that this is distinct from long term memory.^{1/} If the job information comes to him in job sequence, he can immediately use it in practicing or performing the job, and it can also be put into long term memory pegged on an effective structure. If the information is not in job sequence, either from memory or in the environment, then the person must juggle it within his short-term memory until it can pass through a kind of performance (job sequence) filter.

Application to Particular MOSSs

The model has been applied analytically to a variety of jobs in a pilot battalion. The circumstances of each job virtually exclude several of the blocks of the general model. These are represented in later diagrams (starting with Figure 3) by a shading of those blocks. Also, some aspects of the remaining blocks should receive the most emphasis in training, for effectiveness. (These are indicated by underlines or arrows drawn with double lines.)

TOW. The training for the TOW gunner (a skill designator for the 11B MOS) is depicted in Figure 3. Here the only relevant sections are practice under simulated conditions and monitoring performance. There is almost no job information that is relevant to engaging and tracking

^{1/} Atkinson, Richard C., and Shiffrin, Richard M., "The Control of Short-Term Memory," Scientific American, August 1971, pp. 82-90.

targets. Therefore, translation and transmission of information are also minimal. There is not much to say about tracking that would help the man do this. For the same reason, there is little need for study or attending class. Also, since it is a combat function, there is no job performance without war.

The practice is of two types: with simulator, and live firing. Live firing is so expensive that it can be done only rarely, so it is inconsequential as training; its primary function is to provide quality control information on functioning of the total man-machine system. The training, therefore, depends almost entirely upon the simulator. Current problems with the simulator (especially the severely limited number of sets and charging the unusual batteries) constitute the major OJT problems.

Cooks. The cooks are a classic case (especially in the pilot battalion) of efficient training that relies primarily upon job performance with printed job aids (recipes). There is a school which most of the cooks attended, and there they practice a limited sample of tasks under simulated conditions, in order to practice parts of the procedure (e.g., cooking two eggs and two strips of bacon, in simulation of cooking for hundreds.)

The recipes (printed on separate cards, published Army-wide) relieve the supervisor of talking the man through the details of his job. The supervisor can monitor performance (i.e., look over his shoulder) easily. However, the quality of work is apparent in the finished product, so inspecting the product becomes the chief mode of monitoring. In the

pilot battalion the supervisor has nearly the ideal for this kind of monitoring, in the form of a simple task rating list that the supervisor fills out for every task. Most of these ratings meet the standards (rated "outstanding"), with a few discrepancies that are discussed immediately with the man (e.g. "didn't follow SOP" when a cook set out juice in a large insulated container rather than using glasses.) It is noteworthy that rating standards did not have to be developed, apparently because the dichotomy between O.K. vs. some shortcoming is natural for these simple, concrete tasks. The sum of such ratings is the principal basis of job evaluation and promotion.

The supervisor also assesses system impact (i.e. consumer satisfaction) and uses it to enhance job satisfaction. He does this by encouraging soldiers eating at the mess to tell the cook in person when they like (or do not like) something. The supervisor also plans to post the name and picture of the cook for each main dish, to facilitate giving credit where credit is due. (Although system impact is useful for increasing job satisfaction and assessing total system performance, it is seldom as complete and timely as it is for cooks.)

TAMMS and PLL clerks. The TAMMS and PLL clerks are of the same basic job type as cooks, according to the model, but they provide an interesting contrast because their OJT is arranged much less efficiently. These are entirely paperwork jobs, but there are no effective published job aids, comparable to recipes, that can guide the man in performance of his job.

Two sorts of job aids are most needed: (a) instructions on each task, i.e. filling out individual forms and files, comparable to recipes

and (b) a flow chart showing how the tasks are related in performance of a larger job function (e.g. ordering a replacement part.) The job manuals do contain instructions and pictorial examples for each form, but they somewhat miss the mark on many points. The man on the job is told that the examples are only examples, so they should not be followed exactly; but the instructions do not specify precisely where to deviate. The job also suffers from the fact that many practices are left to local SOP, so directions must allow for significant variations. There is no apparent reason why so many local variations are needed.

Some of the "training" problems seem to be primarily a matter of arbitrary standards. For instance, in one form, if no oil is added, the clerk or operator must not write "0", but must leave it blank. If he writes "0", the IG inspector will call it a deficiency (although it does not affect maintenance in any way.) Therefore, the "0" must be "whited out", or the card destroyed and written again.

There is need for thorough analysis and instructional development effort for developing written job aids, on a central basis (for efficiency), to be published Army-wide. There are more difficulties in working out the "bugs" in such instructions than in the typical recipe. That appears to be the main reason why the problems persist. Yet experience with similar job aids indicates that clear instructions can be devised.

There are a few existing flow charts in the manuals for the PLL job, but generally they do not meet reasonable specifications for job aids: who performs each action (with alternatives, where appropriate), which physical part of the job is involved (e.g. which file or which form), and what specifically is to be done, with all significant alternatives. (A

criterion for checking completeness is to see that all forms used on the job are referred to, in all their functions, and that the functions form a coherent pattern, according to the stated purpose of each form.)

The primary means of monitoring performance is inspecting the product, generally on a sampling basis. There is no need for the supervisor to monitor performance in progress, although self-monitoring is a critical function that job aids should provide. The effects of errors may take time to become visible, so it is best not to rely on system impact to shape performance. However, the volume of work accomplished each day may have a system impact by delaying the supply and repair process, so this system-related aspect of performance should be monitored more thoroughly.

Another major OJT problem is actually a personnel system problem. The TAMMS clerk and the PLL clerk are separate jobs in practice, but they share one MOS (76D). Consequently, each must learn the other's job when preparing for the MOS (SQT) test.

It should be noted that this MOS remains an OJT problem despite the availability of regulations, manuals, correspondence courses, and TEC lessons. These training resources are either geared to the "prepare to perform" path in the model, or they are simply too cumbersome for easy use as job aids. They would be more useful as training resources if they prepared the learner to apply well-engineered job aids on the job.

Mechanics. Two types of mechanic jobs can be analyzed through the model: generator mechanics and vehicle (track and wheel) mechanics.

The generator mechanic's job involves the physical process of inspection and repair, rather than the purely paperwork tasks of clerks. The job performance cannot be monitored satisfactorily by only inspecting the product, because much of the process tends to get "buried" (i.e.

not accessible by inspection). Therefore, there has to be monitoring as the person performs (at least at first), and sometimes inspection of the product at various stages in the process of repair.

The generator mechanic usually has school training also, but this has been shaded out because that is not of particular concern in the battalion and because of a particular problem with the school training. The problem is that the school training concentrates on electrical systems, whereas it is the mechanical systems, especially the engines that fail most often, and therefore are the concern in most job activities.

Vehicle mechanics fit much the same pattern. The primary process for shaping performance should be a combination of monitoring performance in progress and inspecting the products of performance. The vehicle mechanics have the advantage of greater numbers than the generator mechanics, making peer assistance easier and reducing the need for manpower planning. They also have manuals that can serve as job aids for the performance of maintenance and repair. However, the use of the manuals seems more difficult. The manuals are in limited supply and are kept in the maintenance office for reference, rather than being used out in the shop while performing the tasks. (When used in the shop, they quickly become un-serviceable.) Consequently, for job aids to function well through short-term memory, they need to be in concise and durable format such as the current lubrication orders.

Mail Clerk. The mail clerk has to pass a written AG test before being allowed to work in a mailroom. Therefore, preliminary study and testing are essential parts of OJT. This testing can easily be job oriented, because a large part of the job involves brief, isolated situations (i.e., "What do you do when you receive the following type of

certified mail....?")

The mail clerk is also required to have 90 days OJT, during which he can overlap with the previous clerk. Therefore, performing the job under personal supervision is an important part of OJT.

There are also many manuals (postal regulations) that can serve as job aids. They represent an instructive case in point, because they are far from ideal job aids, written in the language of regulations rather than as simple algorithms or instructions. In practice, the manuals make job mastery more difficult, but other factors insure that it is reached. The task structure helps make self-monitoring feasible, and feedback on the system impact is relatively timely and complete. For example, the mailing of checks twice a month operates as a natural check on the speed and accuracy of the clerk's mail handling. Thus, while improved readability would be helpful, the existing job aids function because of the shaping effect of the job structure and job consequences. The most significant continuing concern, then, is likely to be manpower planning to ensure prior test completion and overlap between old and new clerks.

Heavy Vehicle Driver. The main problem with performing this job is not the driving, but the maintenance inspection. Many drivers, tired as they finish a day's driving, skip the inspection and fill out the form after leaving, writing down only the shortcomings that were listed at the start of the day. This seems to be a problem of supervision: their performance needs to be monitored more often. Supervisors might also spot check some vehicles (i.e. inspect product, random sample) to determine failure to detect faults.

Track Vehicle Driver. Although this job seems very much like the heavy vehicle driver's job, there are some distinctly different problems.

The driving is a problem, not from the standpoint of maneuvering the vehicles, but from bad habits that result in excessive wear and need for vehicle maintenance. It appears difficult to monitor the driver's performance, there is no product to inspect, and by the time there is system impact, it is difficult to relate it to particular actions of individuals. Apparently, the cues that operate with heavy vehicles, such as engine noise and smooth shifting, are masked or unrecognized in track vehicles. Two possible avenues of improvement are training emphasis on recognizing the cues (if not recognizing them is the problem) and periodic inspections for signs of wear (if they are measurable).

General Points for Job Performance

The most critical need in OJT is for the performer to receive the kind of feedback that will shape performance to meet standards. The feedback should be immediate, rather than delayed, positive or neutral, rather than negative, and actionable, rather than obscure or related to factors beyond the performer's control. The second critical need is for learning/training resources that can be retained easily in short term memory and applied in job sequence.

From the perspective of developing printed resource materials, the first priority--usable feedback--can be addressed (1) by providing clear task definitions, (2) by providing criteria for monitoring performance and inspecting products. These needs are addressed adequately for many combat skills by soldiers manuals and gunnery tables, and they are

addressed well for cooks by the combination of recipes and work sheets (which are used for the routine task ratings). They are not addressed adequately for jobs such as the TAMMS/PLL clerk by the soldiers manual, because the criteria rely on references to other resource materials. Hence, this kind of job relies on the job aids themselves to make the criteria usable for the performer and his supervisor.

From the perspective of managing OJT, the same priorities apply. The first is to ensure that usable feedback is provided on a continuing basis. In some jobs, such as the mail clerk, this is a natural part of the job environment. In others, such as system impact feedback for cooks, it can be arranged easily. In still others, such as drivers and mechanics, considerable supervisory effort is required to establish performance monitoring and product inspection to shape performance. The second main priority--the learning resources--is largely beyond the scope of the unit. However, locally developed job aids, such as operator maintenance checklists, have proven feasible in some cases. The traditional approach of preparing formal instruction for OJT is an unnecessary and continuing burden on supervision.

OJT Administration

Currently, entering a soldier in an OJT "program" requires a great deal of paperwork. The paperwork is apparently intended to insure that effective training is conducted, but it is almost entirely ineffective. A paper audit trail may make training apparently inspectable during the AGI, but it has no positive effect on the supervisor's time for training nor--more importantly--on the training resources and the feedback to the performer. Moreover, administrative requirements for OJT

are counterproductive to the extent that they suggest a classroom model as the appropriate form for OJT, when supervisory efforts would be far less time consuming and far more productive channeled along other paths. Basically, the procedures for conducting OJT should not be prescribed in the administrative requirements for OJT.

On the other hand, the products of OJT--namely, the skill level developed in OJT--are an appropriate administrative concern. The awarding of a secondary MOS should represent a certification of performance to standard, which serves as one basis for decisions on promotion and assignment. These decisions are beyond the unit's immediate concern with performance in the current duty assignment.

Currently, certification that necessary skills have been attained relies on the judgment and integrity of the NCOs/officers in the performer's unit. Expanding or eliminating the paper audit trail does not alter this central fact. It can be assumed that the unit has a positive stake in the performance of the OJT candidate's duties, because it is unit needs that prompt OJT assignments. Thus, it seems most appropriate for administrative requirements to focus on guidelines for the unit's certification of performance--what performance tests should be applied, when they should be applied, and who is qualified to certify their successful completion.

At present, certification of skills in a secondary MOS is far from a formal testing procedure. In future, as the SQT program matures, consideration might be given to use of the SQTs to certify performance in

secondary as well as primary MOSSs. In the interim, the most productive developments in OJT administrative requirements seem to be

(1) eliminating much of the paperwork, and (2) clarifying the guidelines for unit certification of performance.

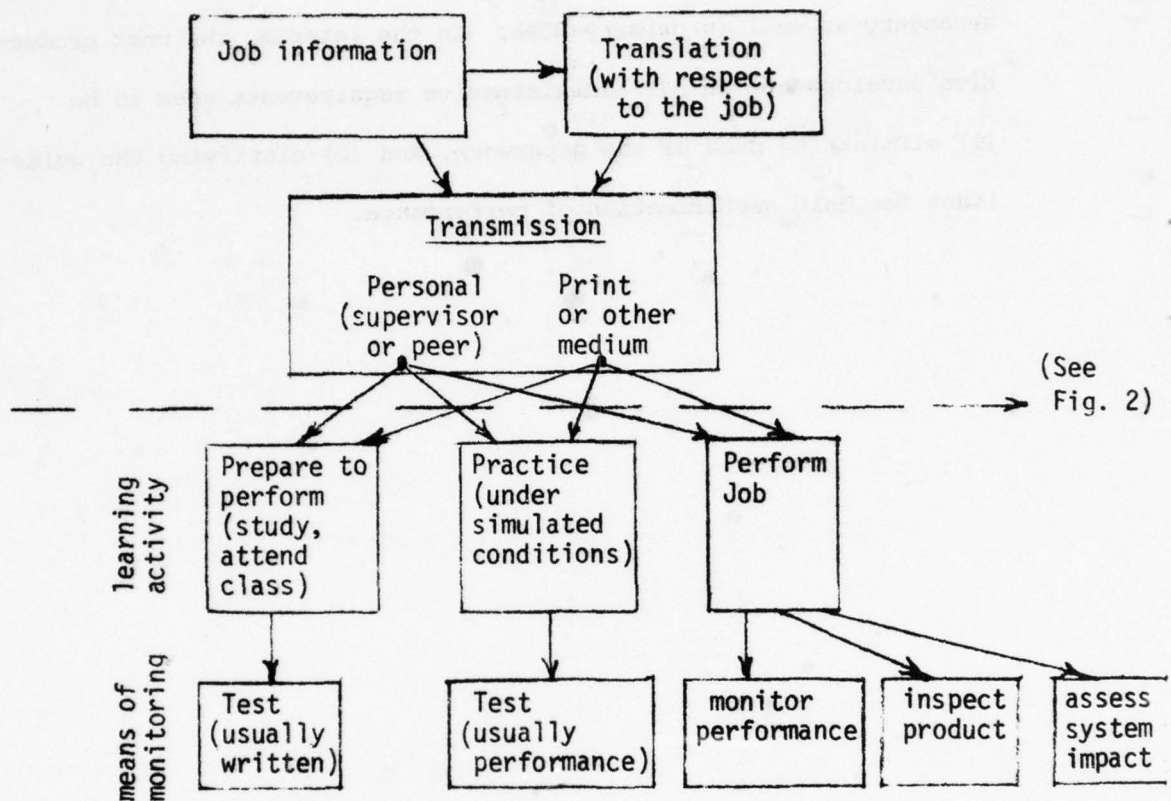


Figure 1. General Job Model

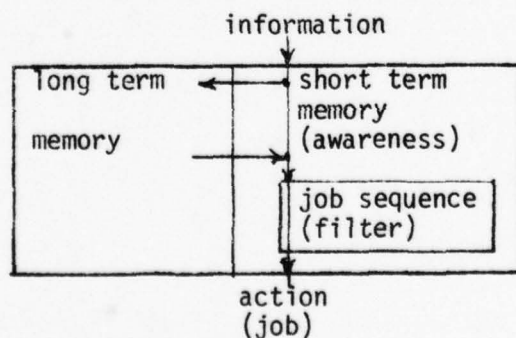


Figure 2. Human Memory

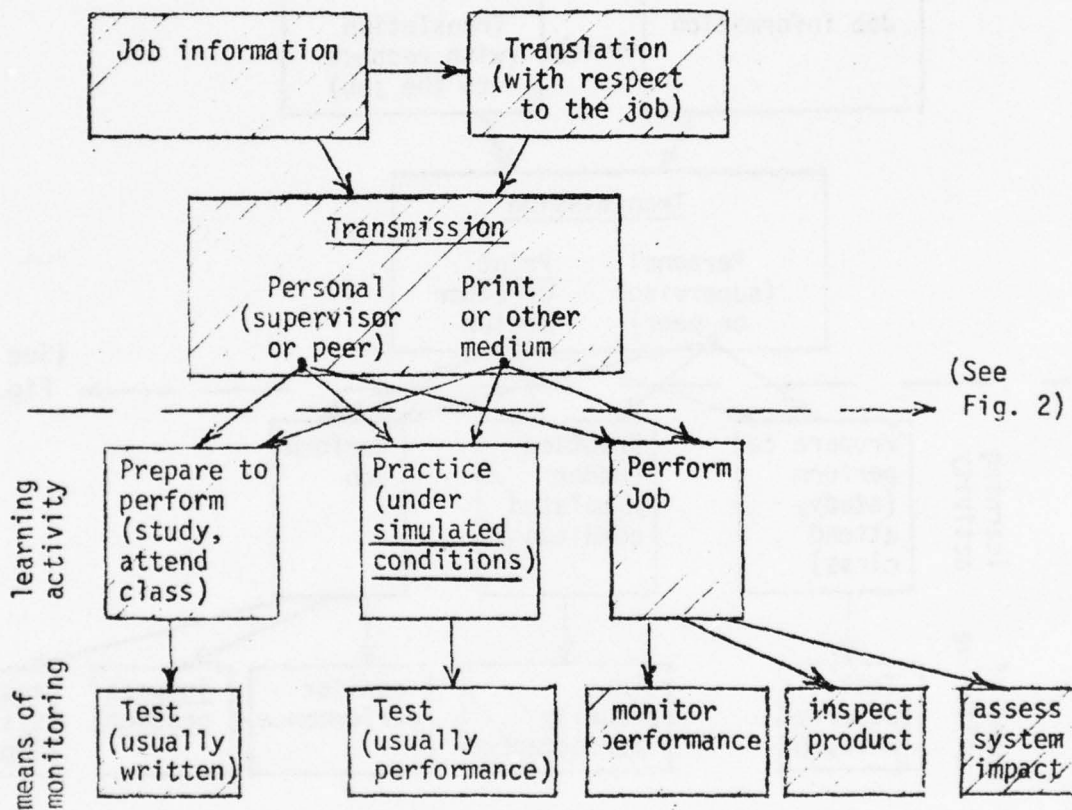


Figure 3. TOW Gunner

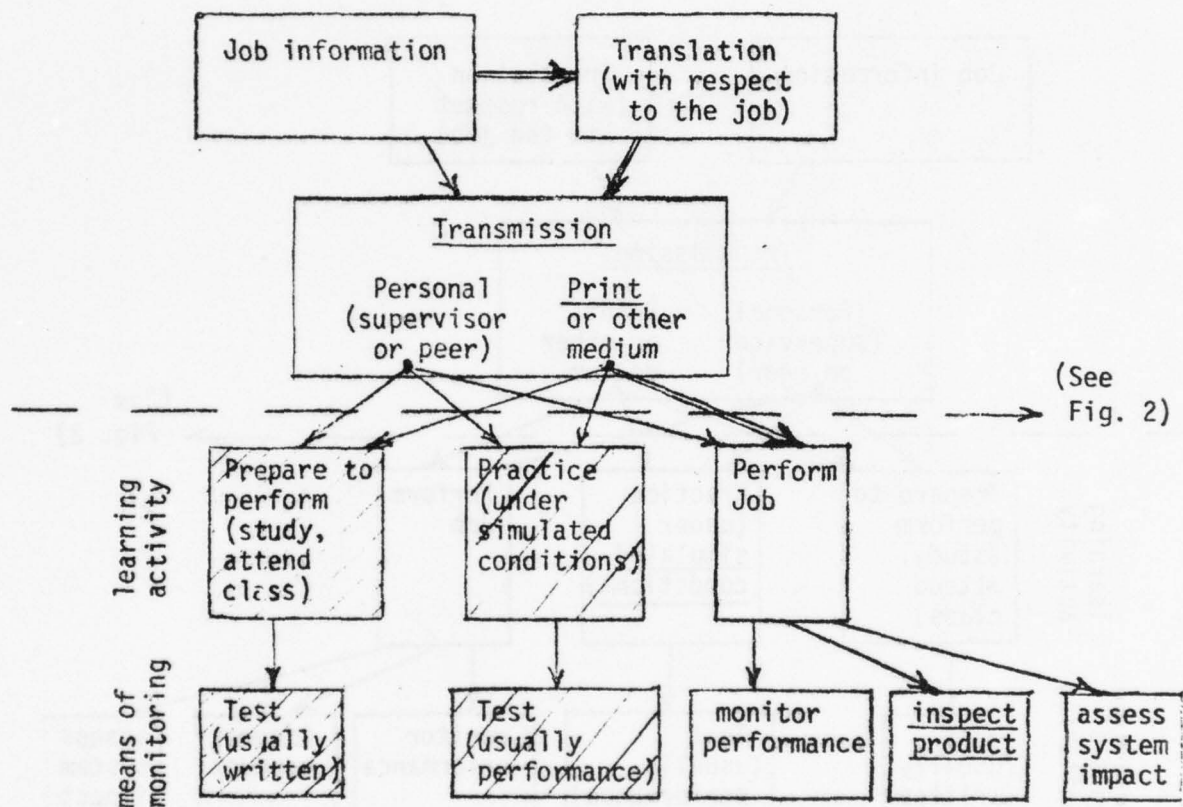


Figure 4. Cooks

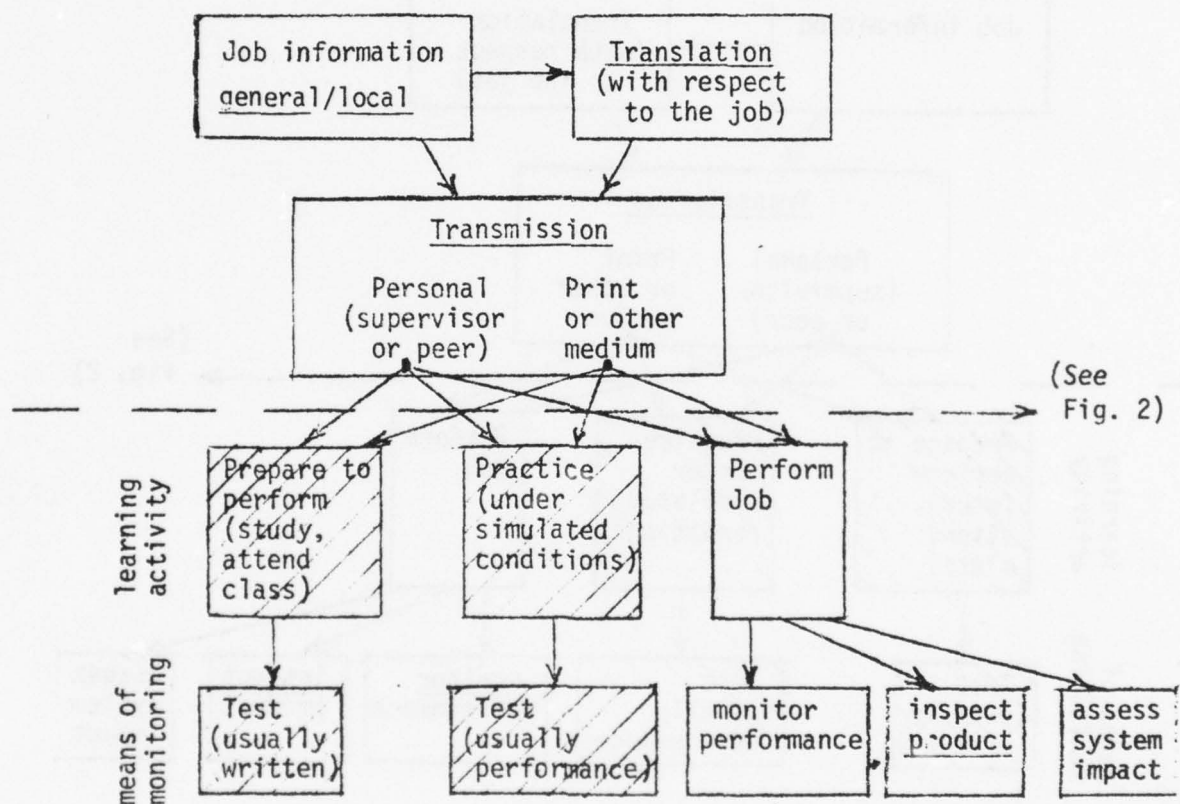


Figure 5. TAMMS Clerk or PLL Clerk

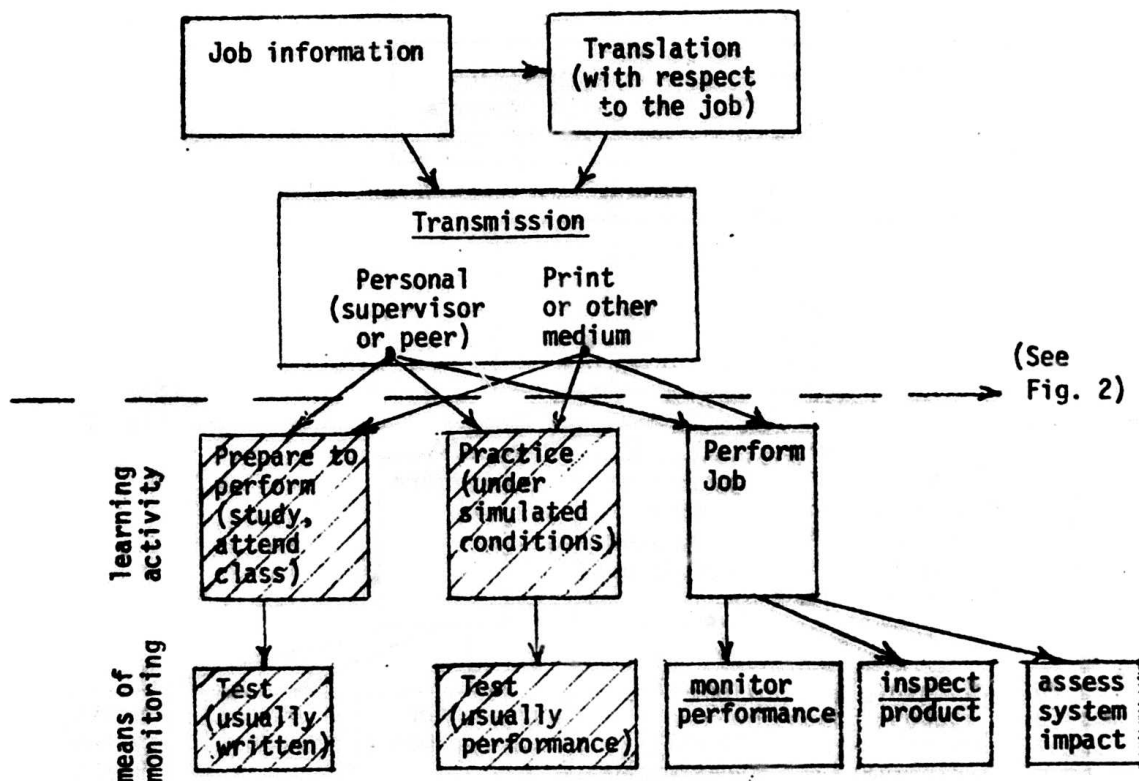


Figure 6. Generator mechanic
Vehicle mechanics

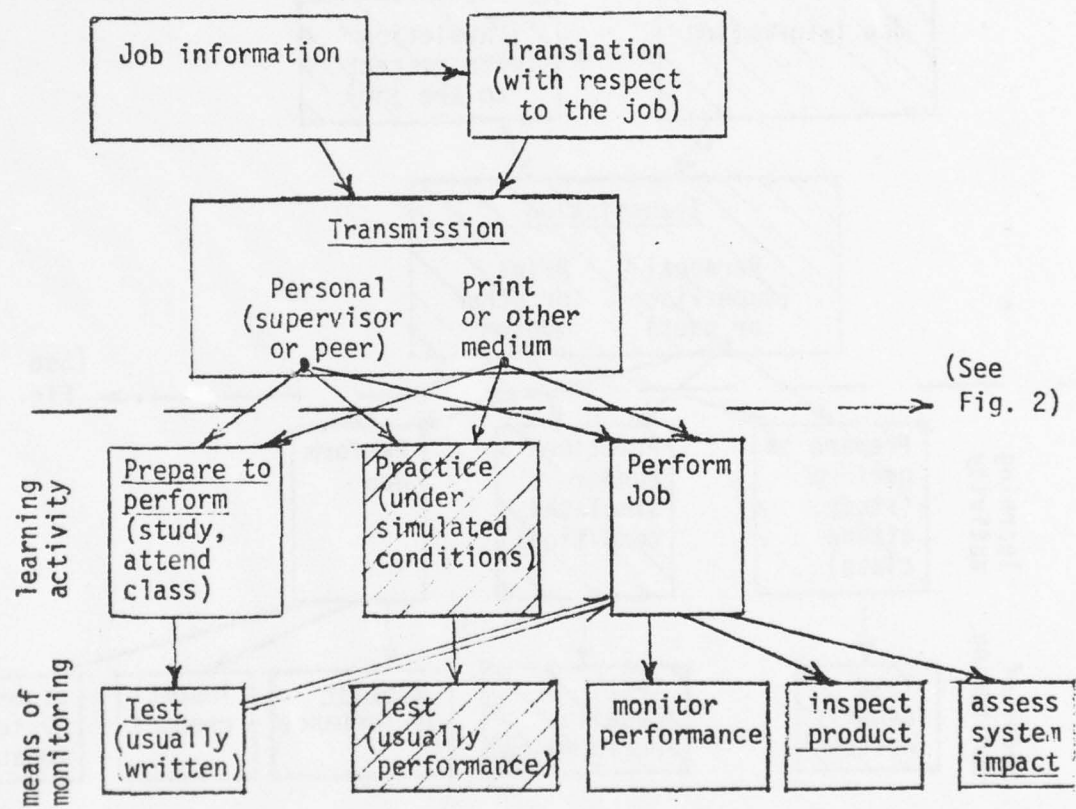


Figure 7. Mail Clerk

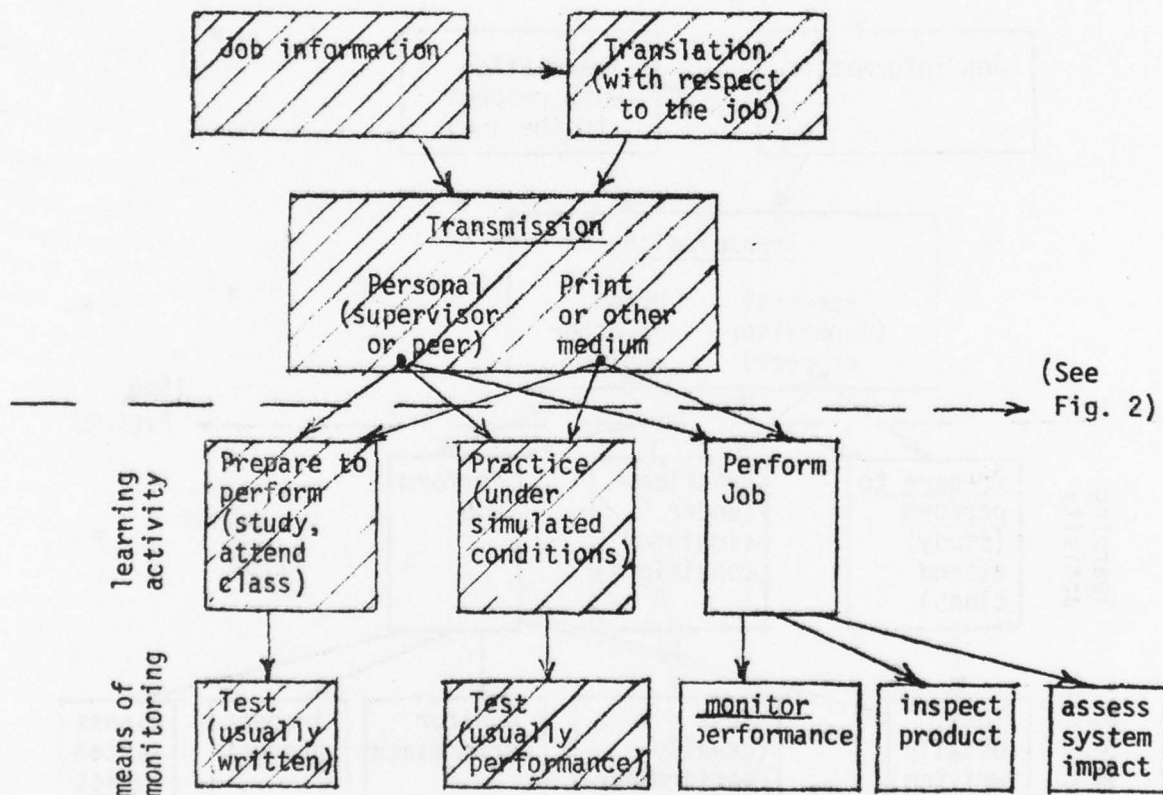


Figure 8. Heavy Vehicle Driver

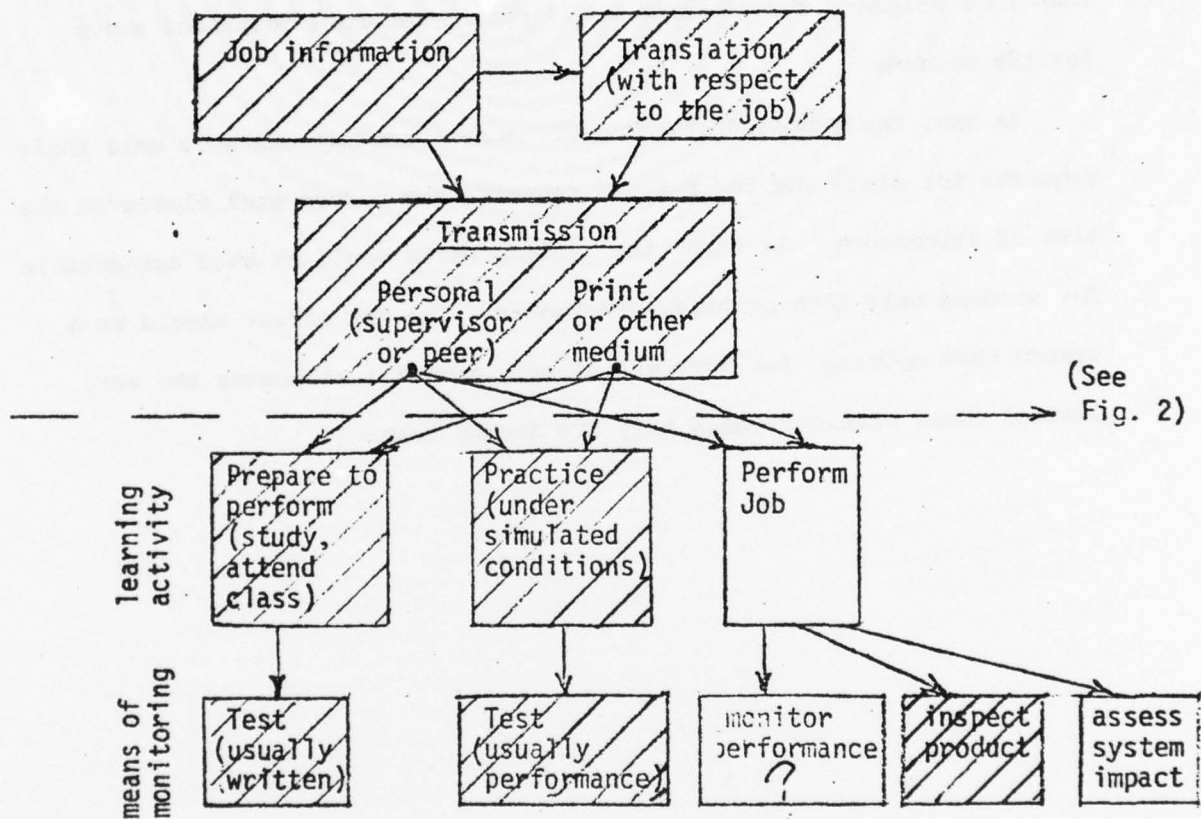


Figure 9. Track Vehicle Driver

The proposed system has been described in terms that fit most courses and most units. Two modifications in other circumstances are necessary. The very low-volume courses, in which a brigade quota would be a fraction of one slot, can be coordinated at division level at the same time the brigades are determining allocations for the majority of the courses. Secondly, for those support units reporting directly to division, rather than to a brigade, the division would act in the role described above for the brigade.

In sum, the proposed system would enable sending units to make their requests for slots and their final requests for orders much closer to the time of attendance. In turn, the sending units would be held accountable for sending only high priority candidates. The net effect should be a system that operates far more efficiently and that allocates the very limited class openings where they are needed most.

The Current System

Problems: USAREUR schools--predominantly courses held at Vilseck--provide far fewer openings than the units require. Assuming course allocations will continue to meet about a third of the requests, then it is critical that the few available positions be used to the best advantage. Currently they are not, primarily because of a cumbersome process of communicating announcements, requests, allocations, and requests for orders back and forth through channels between the sending units, higher headquarters, and Vilseck. Specifically, current utilization problems include: (a) delays in receiving course announcements, with short suspense dates for making requests, (b) difficulty in deciding whom to send far in advance of attendance, (c) inflexibility when circumstances make changes desirable or necessary, (d) priorities not being reflected in course allocations, (e) classes not being filled or including low priority people ("warm bodies").

Description. Figure 1 shows the sequence of major events for enrollment and attendance in first-quarter courses. Course announcements reach the battalion about 12 weeks before the start of the quarter, and requests for course slots are due back to brigade within a few days. Course allocations reach the battalion the last week before the start of the quarter, and orders must be requested for students immediately. The first orders are not cut and returned for another six weeks, and students in the first half of the quarter are generally sent without orders.

The following are the major steps.

A. Course offerings announced. Each quarter, Vilseck announces the courses to be offered, the class dates, and the number of openings. The announcement goes through each higher headquarters, with delay and duplication at each level. When it reaches the battalion and companies, little or no turnaround time is left.

B. Requests. Companies determine their expected school needs (planning 13 to 25 weeks ahead) and submit requests for those who meet or are expected to meet course prerequisites. The requests are for specific class dates. The battalion consolidates the requests, but does not submit names or other information that would help decide priorities. The requests are consolidated at brigade and each higher headquarters. Because the requests far exceed the openings, much time is wasted at the company level in manpower planning and in counseling prospective students, as well as at each higher level in the consolidating process.

C. Course allocations. Course allocations are distributed by Vilseck and then by each higher headquarters to its subordinate elements. Allocations are almost always smaller than requests, and battalions are not intentionally given more slots than they have requested. One effect of this process is a kind of "date lottery", because battalions are not considered for dates they did not request, even though one date may be as good as another to the battalion. A second effect is possible inflation in the requests, if courses are allocated on the basis of the number of requests by each unit; the greater the number, the greater the chances of getting the allocations actually needed. A third effect is delay; battalions do not know which classes are scheduled for them until

just before the start of the first course.

D. Orders. Battalion requests orders. Typically, names for both a primary and alternate are submitted, but orders are cut only for the primary; sending the alternate instead would require initiating another request for orders. The requests are forwarded to brigade and then to division, where the orders are cut. A month is supposed to be the time required for orders, but six weeks is typical. Thus, the effective lead time for making final determination of who is to attend a given class is six weeks. Those attending in the first half of the quarter must be requested immediately; later attendees can be submitted week by week.

E. People sent. Because of the delays in the above process, those attending in the first half of the quarter generally do so with a letter of introduction rather than orders. Consequently, they cannot be sent by train, but must go by private or government vehicle. Sending students by truck rather than train is not likely to be cost-effective. Also, because battalions must commit so far in advance, because shortfalls produce repercussions from higher headquarters, and because there is no provision for shifting allocations easily outside the battalion, those actually sent are sometimes "warm bodies" attending to prevent a shortfall rather than to meet a priority need.

The current system of allocating courses by request replaced a quota system. It has probably reduced the shortfalls--filling more of the classroom slots--but it has not eliminated them. Nor has it ensured that classes are filled according to rational priorities. Moreover, it costs a great deal in unnecessary time, effort, and expense.

The Proposed System

The proposed system would alleviate the problems by eliminating loops in the process, by providing for concurrent processing, by disseminating information where it is needed, and by providing a means for passing course slots to other battalions when high-priority candidates cannot attend.

Description. Figure 2 shows the sequence of major events. Course announcements would reach the battalions 5 weeks or more before the new quarter. Concurrently, allocations for brigades would be processed through channels, based primarily on unit organization (TO&E) rather than requests. Requests would reach brigade 3 to 4 weeks before the quarter, and brigade would allocate firm slots shortly thereafter. Fund citation numbers would accompany the brigade allocations, and orders would be cut locally a few days before attendance.

A. Course offerings announced. If the long lead time for processing requests is eliminated, the announcements can be distributed much later and in different ways. One option is to distribute directly from Vilseck to all levels simultaneously. This direct distribution could be limited to brigade level or extend to battalion, depending on the difficulty of maintaining up-to-date addresses for the units. Direct distribution does not eliminate any control functions at higher headquarter, but it does eliminate duplication and delay.

Alternatively, if divisions wished to incorporate divisional offerings (such as their NCO classes) in the announcement, the distribution could be handled at division level. In either case, companies should be

provided at least a week--and preferably more--to plan their requests.

Further, the announcement should include any new or revised prerequisites.

B. Requests. As with the present system, requests are generated within the battalion on the basis of expected need--anticipating turbulence in critical positions, for example. However, the slots are identified two months closer to the course dates, giving a better estimate of both needs and schedule conflicts. Secondly, requests are not limited to specific class dates. Third, requests include brief information that can be used for establishing priorities within the brigade. For example, school-trained and non-school-trained mechanics are both seen as benefiting from the Vilseck course, but the OJT group probably represent a higher priority for the limited class openings. Similarly, a mechanic may be approaching the one-year limit for retainability that would disqualify him and may be a higher priority than the candidate who has just become eligible. The requests could include simple priority codes and cut-off dates, enabling brigade to allocate according to priority. (Pilot testing can determine the simplest effective formats for timing and priority information from the battalions.)

C. Allocations. Concurrent with the request process, the division allocates "quotas" and fund citation numbers to the brigades. The quotas are assured slots, but they are not mandatory. If a given slot is not needed within the brigade, the division would expect to be informed within 2 weeks of the first class. The brigade reviews the battalion requests and allocates the slots according to priority and within constraints on attendance (such as major field exercises). The brigade then publishes the allocations plus a list of high-priority requests that were not met.

The priority list serves later as the basis for selecting alternatives. For example, if a top-priority candidate proves unable to attend a class as scheduled, the second-priority candidate in a sister battalion may be selected instead. Further, the high-priority requests that are not met by the brigade's quotas should be consolidated and forwarded (a) to higher headquarters for possible adjustment in the following quarter's quotas or for reassignment of any quotas turned back by other brigades, and (b) to Vilseck for possible adjustment of future class size and frequency. The total priority requests are likely to be smaller than current totals for requests, but they would represent a more reliable gauge of the gap between school offerings and priority needs.

D. Orders requested. Since a block of fund citation numbers accompanies the brigade's quotas, orders can be cut locally in about two days, instead of six weeks. Thus, the final determination of who is to attend can be made in accordance with both priorities and personnel availability a matter of days before the class. If an emergency prevents someone from attending, it would be the battalion's responsibility to see that the alternate is also a high-priority candidate within the brigade. In practice, the high-volume course allocations are likely to stay within the battalion, and the low-volume courses are likely to require inter-battalion coordination. The brigade-wide priority list published with the allocations would enable this coordination to be done easily on the telephone.

E. People sent. The process of briefing students before attendance would continue. The major difference is that travel would be by the most economical means, such as train, because all students would have orders.

Discussion

The revised system combines aspects of both the current system and a quota system. The long lead time between requests and allocations is eliminated, enabling units to make much more reliable predictions of course needs. The long lead time between requests for orders and receipt of orders is also eliminated, enabling the final determinations of attendees to reflect priorities and the transportation to reflect cost considerations.

Brigade and division do not lose any genuine control in the revised system. Currently, the only decision-making information they can act upon is the sheer number of requests from subordinate headquarters and the unit TO&Es. At division, this same information can be used from quarter to quarter in establishing the brigade allocations, but the paperwork and effort in each step of the process are greatly reduced. At brigade, control is enhanced, because requests include priority information, and allocations to the battalions reflect these priorities. Further, rather than channeling requests for classes and orders back and forth, brigade simply handles them on the spot.

For Vilseck, the proposed system would rule out the possibility of sending background information long in advance for each student. However, given the short time between allocation and attendance as well as the frequency of alternate selection, this possibility is frequently ruled out in the current system. Thus, the major effect from a Vilseck perspective should be (a) elimination of shortfalls, (b) elimination of the "warm body" problem, and (c) assurance that those attending a course are those with a priority need for the course.

The proposed system has been described in terms that fit most courses and most units. Two modifications in other circumstances are necessary. The very low-volume courses, in which a brigade quota would be a fraction of one slot, can be coordinated at division level at the same time the brigades are determining allocations for the majority of the courses. Secondly, for those support units reporting directly to division, rather than to a brigade, the division would act in the role described above for the brigade.

In sum, the proposed system would enable sending units to make their requests for slots and their final requests for orders much closer to the time of attendance. In turn, the sending units would be held accountable for sending only high priority candidates. The net effect should be a system that operates far more efficiently and that allocates the very limited class openings where they are needed most.

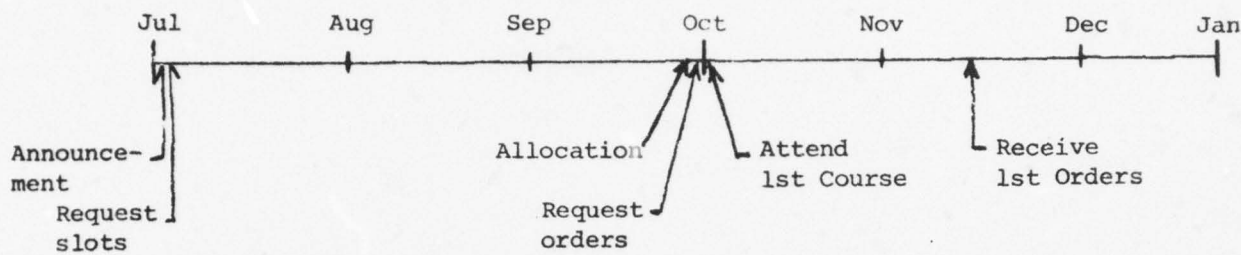


FIGURE 1. CURRENT SYSTEM

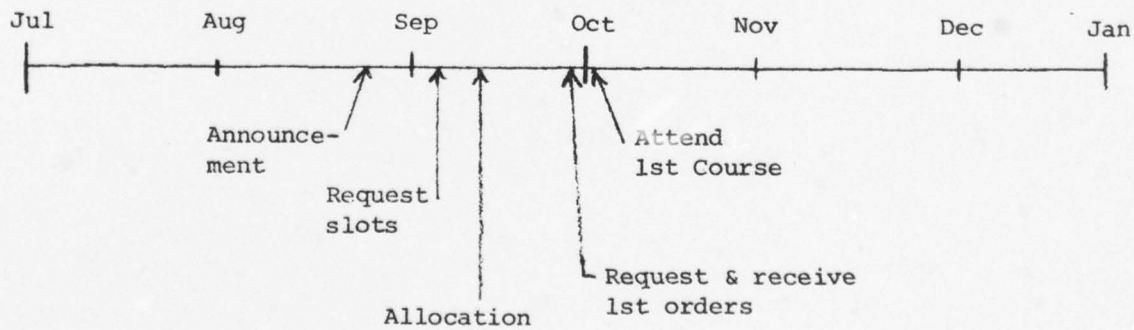


FIGURE 2. PROPOSED SYSTEM